...SITY OF NEBR.

Contractors and Engineers

magazine of modern construction

A Buttenheim Publication

Small breakwater construction

28 miles of Asphalt

for this Texas State Highway

PHOTOGRAPHS

(Left) Power graders were used to spread leveling course of TEXACO Asphaltic Concrete over old pavement.

(Right) Mechanical paver lays second course of TEXACO Asphaltic Concrete. Note small roller attached to paver, which bevels edge of pavement.

CONTRACTOR

GULF BITULITHIC COMPANY, HOUSTON

This Texas project illustrates an important advantage of Asphalt highways—the ease and economy with which Asphalt paving can be strengthened to serve increased traffic.

To the existing Asphalt pavement on this 28-mile section of State Highway 87, Texas recently added a new, two-course surface of hot-mix Texaco Asphaltic Concrete. A strong, lasting bond forms between the new and old Asphalt courses, providing a pavement which readily copes with today's heavier traffic load.

The aggregate used in the new plant-mixed Texaco Asphalt surface on Route 87 consisted of uncrushed gravel, shell screenings and sharp field sand.

Helpful information on all of the heavy-duty, intermediate and low-cost types of Texaco Asphalt paving for streets, highways, airports and parking areas is supplied in two free brochures. Our nearest office will be glad to mail you copies. No obligation.

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TEXACO ASPHALT

For more facts, use Request Card at page 18 and circle No. 251

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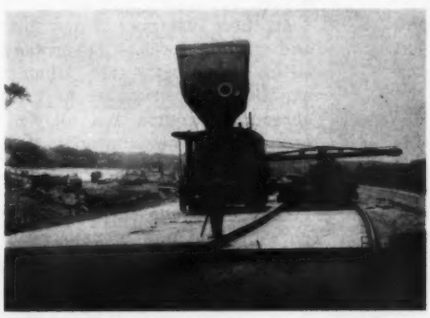

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Editorial

Patents pending?

Ten years ago this month the Construction Industry Manufacturers Association was formed. Even in the short space of a decade, the members of CIMA have advanced the cause of construction considerably by producing new units of equipment, or improving existing machinery. By making available to contractors the best possible tools of their trade, the manufacturers help builders work more efficiently and economically, thereby giving the public the greatest value for its construction dollar. We congratulate CIMA on its tenth birthday (see page 30), and wish it continued success in the years ahead.

But we can't be complacent about our domestic achievements. We are taking a look this month (see page 22) at what the Russians are doing with a vibratory device for sinking piles. A group of visiting Russian engineers in a joint seminar here last month told their U. S. counterparts that for the past five years they have been putting down all types of piles, plumb or battered, by vibration. The U.S.S.R. technicians claim they do this about five or six times faster than they could with the conventional pile-driving hammer.

We all have probably seen the science-fiction cartoon of the huge, single, road-building machine rolling like a monster across virgin country, and squeezing out behind it, as from a toothpaste tube, a smooth ribbon of finished pavement on precise alignment and grade. We have not yet reached that stage in our development of road construction, but from West Germany comes word of a new patented prefabricated highway (see page 54). This type of road is still in the drawing-board and laboratory scale-model stage, but so many fantastic things are occurring these days, that no one can say such prefab highways are impossible.

Right here at home, Curtiss-Wright, a diversified corporation that makes, among many other products, a line of earthmoving equipment, has announced a new process for converting coal into a blacktop-paving binder material for the construction of highways and airport runways. Just when the bituminous coal fields of this country are feeling the economic pinch from competitive fuels such as gas, oil, or even radiant energy, a new market may open up for the coal miner and his industry. C-W claims its new material will build, for less money, a better highway than can be obtained with some competing present-day materials.

All these instances of new thinking and original development in the construction industry are stimulating, whether they originate at home or abroad. Of course, not all the new products and new materials that are turned out every year stand the test of time. Many fail. But as long as man takes the attitude that he can improve on a product now in use, or make a better one, the industry and the public will always stand to profit.

CONTRACTORS AND ENGINEERS

A Buttenheim Publication

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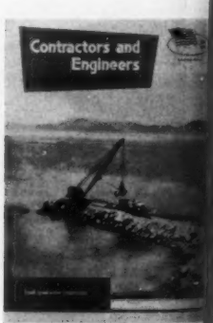

A Hough HH Payloader w
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rock to an Insley crane w
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bucket on a partially co
pleted breakwater in L
Tahoe, Nev. These rigs c
two dump trucks handled
entire breakwater job.
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Steel-pile dam built fast to restore city's water supply

The last L. B. Foster sheet piles are driven to close off the emergency dam in the Licking River at Newark, Ohio. Earth and rock are backfilled around the wall and bracing for added strength. This dam restored to full capacity the city's water-supply system, impaired when a flood knocked out the impounding dam at the waterworks.

Fast teamwork by city forces, industry, a sheet-piling supplier, and a contractor restored to full capacity the Newark, Ohio, water-supply system, after a severe flood knocked out the impounding dam at the city's waterworks.

After a battery of emergency pumps proved inadequate, city engineer Edward Roubal called for construction of a temporary dam across the Licking River. L. B. Foster Co., Pittsburgh, was contacted to supply the required 187 pieces of MP-116 sheet piling, and Rome Daugherty Construction Co., Logan, Ohio, mobilized its forces and moved to the dam site.

City forces and the contractor built rock dikes into the river from both sides to serve as work areas for equipment. Two Link-Belt Speeder cranes drove a line of steel H-piles across the 225-foot-wide river to serve as deadmen to brace the wall of sheet piling. The 50-foot-long piles were driven 45 feet deep.

About 10 feet upstream, a parallel wall of sheet piling was started. First a simple guide frame, consisting of H-piles and horizontal H-beam wales, was erected. Set up against the wales were 30-foot-long panels of piling, driven with either a McKiernan-Terry hammer with fishtail guides or a Vulcan No. 2 hammer operating in leads. A Jaeger 600-cfm compressor supplied air to the hammers.

Wales were braced at two levels with H-beams set against the H-pile deadmen. Piling was driven from both sides of the river, and closure was made with successive single sheets of piling driven to 15-ton penetration. Piling at the center of the river was held tight against the wales by the force of the strong current. An overflow section was left in the wall so that the river could pool to a level that would enable the city's pumping station to operate without the aid of emergency pumps. For extra strength, the wall of sheet piling was backfilled with rock.

Working round the clock under a battery of floodlights, the contractor completed the dam in a matter of days. Plans are now under way for a permanent dam. THE END

New C.I.T. representative

Herbert Koenig has been named a field representative for the C. I. T. Corp., industrial financing firm of New York City. From Portland, Ore., headquarters, he will cover the eastern part of the state and East Portland.

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TRUCK TIRES BY

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

For more facts, use Request Card at page 18 and circle No. 252

A NEW HOTEL – with an old look

Crews on the second floor of the Royal Orleans Hotel in New Orleans place steel and erect forms. The double Archer tower, with a Chicago boom, lifts concrete to upper floors. Delivery of materials had to be tightly scheduled because of lack of storage space in this part of the city.

Steel pans for the floors, furnished and erected by Southwest Steel Products, Houston, are nailed down to 2×8's laid flatwise. These, in turn, are supported by upright 2×8's held by adjustable steel shores.

by BILL ALLEN, field editor

A new hotel is going up in the French Quarter of New Orleans.

What with girls parading by the building within whistling distance, and with bars and famous restaurants within whiffing distance, it's sometimes hard for a construction man to keep his mind on his work.

The hoist operator may pause between lifts to watch a couple of strippers from a Bourbon Street bistro sashay down the sidewalk. From a vantage point on the third floor, Hal West, engineer for J. A. Jones, glances down at the corner of St. Louis and Royal where a line of waiters from Antoine's—in black suits, white shirts, and black ties—look up at the construction.

Tourists give problems to the driver of a big semi hauling the reinforced steel through the French Quarter. Once, after fighting his way up the narrow, one-way streets, he found himself behind a horse-drawn tourist carriage. There was nothing he could do but adjust his speed to the gait of the horse.

The supervisors on the job eat their lunch in the historic old "construction shack." It is located on the ground floor of one of the oldest buildings in New Orleans, and Napoleon himself was once invited to take shelter under this roof.

The field offices are located in the old Girod House. The brick building was built in 1797 by the mayor of New Orleans, Nicholas Girod.

Careful foundation work

But despite the attractions of the girls, restaurants, and this old quarter of the city, crews of J. A. Jones Construction Co., Charlotte, N. C., are working hard and bucking some tough problems to build the big hotel and adjoining parking garage.

The general contractor had to be extremely careful with the foundation work. A portion of the basement wall of the new hotel rose up within a few feet of a 143-year-old building whose shaky load-bearing brick walls rested directly on the unstable clay.

Great care had to be taken in driving the sheet piling, as well as the timber piles that support the hotel. In fact, the timber piles were placed in predrilled holes and driven only for the last 3 feet into a layer of sand.

Material delivery

Since the two buildings occupy nearly all of the area in the half-block, there is little storage space to stockpile building materials. The adjoining streets of Royal, St. Louis, and Chartres are only about 20 feet wide, making it difficult for big trucks to deliver materials to the job.

One of the biggest problems, and one which the superintendent could do nothing about, was the weather. Because of excessive rain, the company was able to get in only 8 full weeks of work in one 23-week period. In spite of the setback, Jones expects to complete the contract by March, 1960.

Named the Royal Orleans, the 350-room hotel will have six floors, a mezzanine on the first floor, and a basement. The garage, without a basement, will have nine floors and provide parking space for 363 cars. Both structures are of reinforced-concrete pan-type construction. Lightweight concrete is used above ground level, regular concrete for the substructure and basement.

J. A. Jones Construction Co. holds the $3.6 million contract for the hotel as well as the $0.5 million contract for the parking building. The luxury hotel is being built for Royal, St. Louis, Inc. Headed by Edgar B. Stern,

Jr., the organization is composed of local business interests. The management of the hotel will be handled by The Hotel Corporation of America, which also runs the Mayflower Hotel in Washington, the Edgewater Beach in Chicago, and the Roosevelt in New York.

Two New Orleans architectural firms combined to design the buildings: Curtis and Davis, plus Richard Koch and Samuel Wilson, Jr. The exterior of the hotel, in harmony with the French Quarter style of architecture, will be of stucco backed by brick or tile. Wrought-iron balconies will front the suites of the hotel, while the sidewalks bordering the building will be shaded by a wrought-iron canopy.

Although the outside of the building is designed to look old, the inside is designed for modern luxury-hotel living. A walkway connects the hotel to the ninth floor of the garage, where guests can swim in the pool, drink in the bar, or cabana in the cabanas. For special guests with unsolvable problems, the basement of the hotel will have a small wine cellar furnished with casks of Napoleon brandy and nylon cobwebs. (The contractor hopes to have this room ready for use before the rest of the building is completed.)

Digging up the past

During the excavation for the hotel, the draglines pulled up some cypress planks that at one time supported the walls of the original building on the site. The plank mats were set in place 121 years ago during the construction of the famous St. Louis Hotel. That building, which had a long and spectacular history, stood on the site from 1838 to 1917. After it was torn down, the area was made into a parking lot. The oldest thing found during the excavation was a French coin, about the size of a silver dollar, that was minted in 1809.

Drive with care

Before the basement for the hotel could be excavated, a wall of steel sheeting had to be driven around the perimeter. In places where the sheeting was within a couple of feet of the 143-year-old brick walls of neighboring buildings a seismograph checked ground vibrations during driving to make sure that they did not exceed a certain amplitude.

The wall of sheeting was braced by steel beams that slanted down to a row of pile caps. This made it necessary to excavate for these particular pile caps before the over-all excavation work was completed.

The hotel building rests on 1,400 wood piles averaging 60 feet in length. In order to minimize ground vibrations, the piles were inserted in predrilled holes. The drilling penetrated the unstable clay and silt for about 30 feet, cut through a 5-foot layer of sand at about minus 42, and reached down to within a few feet of a firm layer of sand at minus 70. The piles were inserted in the holes

(*Continued on next page*)

For more facts, circle No. 253→

Construction is well past one difficult problem at this stage. The new hotel rubs shoulders with the 143-year-old buildings that house the WDSU radio and TV studios, and the driving of sheet and wood piles early in the job had to be done with caution. The old load-bearing brick walls rest directly on the unstable clay found in this area.

NEW DW21 SERIES G "LOADS FAST AND HAULS FASTER"

Supt. Ruben Hawkins, Harbaugh & Wright, Inc., Enid, Okla.

More production, faster cycles, more profit—that's the report on the new Caterpillar DW21 Series G Tractor with new No. 470 LOWBOWL Scraper.

As Ruben Hawkins (see above) sums it up from his experience on a 2½-mile Interstate Highway job in Oklahoma:

"This new DW21 has plenty of power. It loads fast and hauls faster."

The contracting firm of Harbaugh & Wright, Inc., brought in four new DW21s to move 1,263,218 yd. of dirt on this project. On the first 10-hour day, they handled 484 loads of 19 cu. yd. on an 1,100-ft. haul. And they kept up this blistering pace to finish the job 40 days ahead of schedule!

For the down-to-earth facts on this great new heavy-duty wheel rig, see the box below. Note that the new DW21 Series G gives you important increases in horsepower, rimpull and scraper rating. Standard tires have also been increased to 29.5-29 (28-ply rating) to handle the increased scraper capacity.

Your Caterpillar Dealer has the complete story on the important new DW21 Series G—and he'll prove what he says with a demonstration on your job.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

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NEW DW21 SETS NEW STANDARDS OF EARTHMOVING

Cat DW21 Series G Tractor with No. 470 Scraper is pushloaded by Cat D9 Tractor on Interstate Highway job in Oklahoma.

NEW DW21-NO. 470

	Series G	Series B
NEW HP	—345 (maximum output)—increased 8%	
NEW RIMPULL	—49,100 lb. (maximum)—increased 12%	
NEW SPEEDS	—increased rimpull provides up to 20% faster travel speeds under similar haul road conditions	
NEW CAPACITY	—19.5 cu. yd. (struck)—increased 8% 27 cu. yd. (heaped)—increased 8%	

Corresponding increases have been made in the new four-wheel DW20.

Construction of the 350-room Royal Orleans, which will stand near Antoine's Restaurant in the old quarter, called for effective routing and timing of material deliveries. Some 600 to 700 cars per hour use the 20-foot streets in this section.

Work on the hotel has plenty of compensations. Hal West, engineer on the job, watches two of them go by. They happen to be secretaries from the neighboring WDSU radio and TV studios.

(*Continued from preceding page*)

immediately after drilling, and then driven about 3 feet into the lower level of sand.

Both dragline and clam were used to excavate the sticky material. The rigs worked from a street-level "peninsula" at the center of excavation.

On the sides of the excavation that adjoined neighboring buildings, the sheet piling was left in place. It was braced against the new foundation wall with poured-in-place concrete struts.

Ground slab is structural

Since nobody trusts that ol' Mississippi mud, even the ground slab was built as a structural slab with two layers of reinforcing steel and frequent grade beams. When possible, the beams were formed by the clay. When the clay was too wet to act as a form, corrugated metal sheets were used.

Tight squeeze for materials

Since there was no storage space on the site, deliveries of steel and other building materials had to be carefully scheduled. The reinforcing steel was normally hoisted directly from the truck to the floor where it was to be used.

The hotel building was served by one double and one single Archer tower. Both were equipped with Chi-

With this shapely doll looking through a window in the perimeter fence, the construction gang found it hard not to look through from the other side. Her first name's Freda. She got away before Bill Allen could manage to find out her last name.

HARBERT USES TEXACO 100% ON FLORIDA PIPELINE PROJECT

TEXACO PLAN makes mobile lube rig a complete service statio

Harbert Construction Corporation, Birmingham, Alabama, cites fine performance record of Texaco lubricants

Although their work on the natural gas pipeline for Florida ranges over 1,000 miles of pipeline, Harbert Corporation's equipment is never out of reach of complete lubrication. The reason: mobile lubrication rigs. And with the Texaco Simplified Lube Plan, each rig is completely equipped to service any lube point on any machine, wherever it's working. There's no time lost deadheading equipment back to a fixed service center. As a result, all equipment gets proper lubrication at the right time.

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A Texaco Simplified Lubrication Plan c cut costs and boost performance on your ne project. Just call the nearest of the more th 2,000 Texaco Distributing Plants, or write:

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Texaco Inc., 135 East 42nd Street, New Yo 17, New York.

A carpenter makes an adjustment on one of the column forms. The plywood is backed by horizontal 2×4's. Three steel bands hold the four panels together. Corners of the horizontal 2×4's are beveled to facilitate the tightening of the steel bands. The vertical 2×4 at the center of each panel tends to eliminate sharp bends in the steel bands.

cago booms. The garage was served by a single tower with a Chicago boom.

Concrete, furnished by Jahncke Service, Inc., arrived at the job in transit-mix trucks. It was then hoisted by the tower bucket to a collection hopper, and Prime Mover and Bell power buggies hurried the mix to the point of placement.

Lightweight concrete

The lightweight concrete used above ground level required special care. Only aluminum floats could be used to work it. Normally, the floors were finished with power-finishing machines. On the garage floors, it was difficult to find a way of getting the desired rough finish. Wood floats roughed it up too much. Finally, a sponge float was found that gave the desired texture to the surface. Even after the lightweight concrete had cured, it was very susceptible to chipping. Workmen had to be cautioned not to drop heavy steel on the floor.

Steel pans form floors

Forming of the floors moved along swiftly. The steel pans, furnished and erected by Southwest Steel Products, rested on 2×8's laid flatwise. These, in turn, rested on upright 2×8's supported by adjustable steel shores.

The square columns were formed with four plywood sides backed by 2×4's. Steel bands, tightened with ratchets, held the forms together.

Personnel

For J. A. Jones Construction Co., Paul Graham is the superintendent and Hal West the engineer. For the architect, Sidney Folse is job captain, and Tom Broadhead is field supervisor. THE END

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TEXACO IN ALL STATES

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(PARTS, INVENTORY, PRODUCTION, DOWNTIME, MAINTENANCE)

For more facts, use Request Card at page 18 and circle No. 254

Syntron Co. appoints two sales engineers

The Syntron Co., Homer City, Pa., has appointed Edward A. Thoma vibratory-feeder sales engineer and Albert G. Neumayer vibrating-screen sales engineer.

From headquarters in Indiana, Pa., Thoma will be responsible for engineering of the company's line of electromagnetic vibrating bulk-material feeders, feeding equipment, flow-control valves, and hopper-level switches. Neumayer will be in charge of engineering of the firm's line of vibrating screens and screening-feeding equipment.

RCA Service opens branch

The RCA Service Co. has opened a branch at 3334 W. Indian School Road, Phoenix, Ariz., to service mobile and microwave radio equipment exclusively. The branch is equipped to serve all types of mobile communications equipment on a drive-in basis. In addition, service at fixed stations and remote base locations will be provided by a mobile service truck.

RCA Service Co. is an affiliate of Radio Corp. of America, Camden, N. J.

B-E names sales manager

Frederick B. Shew has been appointed manager of sales for commercial cranes and excavators produced by Bucyrus-Erie Co., South Milwaukee, Wis. He was previously sales development manager.

Talcott adds to staff

John M. Hart has joined James Talcott, Inc., Atlanta, Ga., industrial time sales and commercial financing organization. He will represent the Credit-America Group of the company's Industrial Time Sales Division in Georgia and North Carolina. This division specializes in financing the sale of construction and other income-producing equipment on the installment basis.

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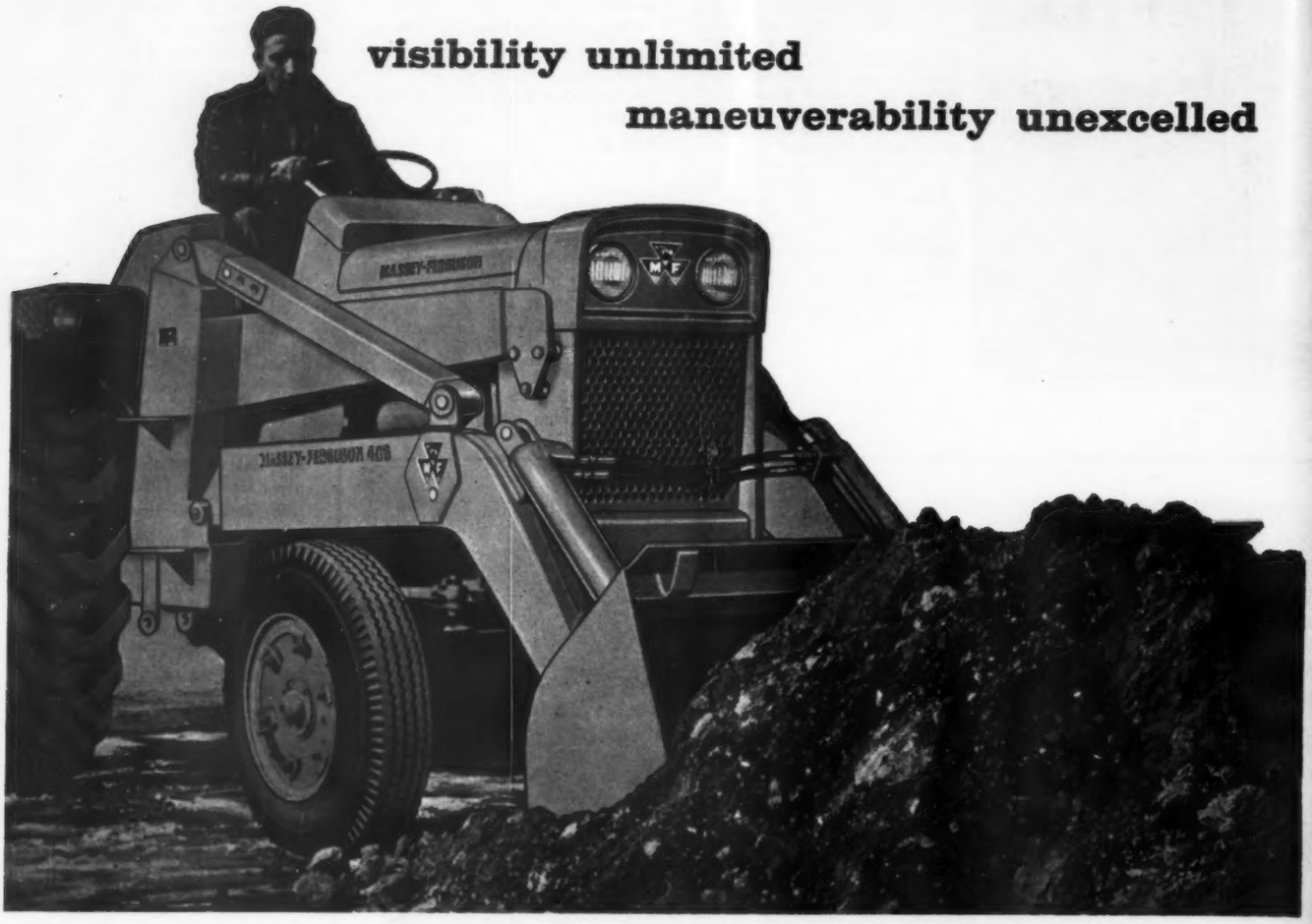

new MASSEY-FERGUSON 406

the BIG CHANGE *in tractor shovels*

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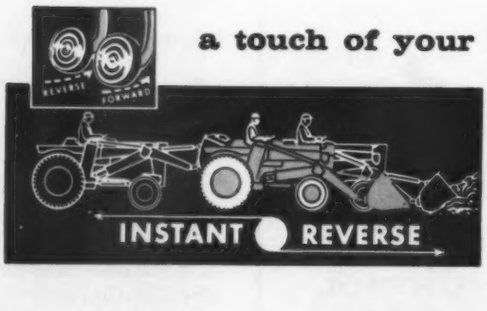
IT'S WORTH BUYING!

For a real eye-opener, let your Massey-Ferguson Industrial Dealer demonstrate this "years ahead" tractor shovel for you. Write for his name and illustrated literature.

a touch of your toe — away you go — forward or reverse



MASSEY-FERGUSON INDUSTRIAL DIVISION

Block 1000 South West Street • Wichita 13N, Kansas

For more facts, use Request Card at page 18 and circle No. 255

Underwater drilling clears way for piles

A barge-mounted Failing 1500 truck-mounted drilling and coring rig and a Manitowoc 3000 crane work together to build a 620-foot-long bulwark along the St. Johns River in Jacksonville. The bulwark will support fill for the 15-story Atlantic Coast Line Railroad headquarters building. Drilling is done through a steel casing to penetrate the rock stratum that lies over the marl in which sheet piles are driven.

Underwater drilling, to permit the driving of sheet piles through rock, has accelerated construction of a 620-foot-long bulwark along the edge of the St. Johns River in Jacksonville, Fla. The bulwark is being installed to support the fill for the new 15-story headquarters building of the Atlantic Coast Line Railroad Co.

Over 20,000 linear feet of ZP38 sheeting is being driven to form this bulwark, which has a 620-foot front and an 84-foot return on the southwest corner. The second return of the bulwark is small because of the shape of the existing shore line.

Sublets pile work

Daniel Construction Co. of Florida, Inc., Jacksonville, holds the site preparation contract and has sublet the pile-driving work to Duval Engineering & Contracting Co., Jacksonville. Duval is using a barge-mounted Manitowoc 3000 crane to handle the driving of the sheeting and H-pile tie-downs.

The 55 to 60-foot sheet piles have to be driven at least 6 feet into the marl stratum that is found at elevations minus 38 to minus 40 feet. This requires driving through the overlying rock stratum, which consists of shell-marl, shell-limestone, and dolomitic limestone having thin seams of silty sand. Since sheet piles cannot penetrate this 16-foot stratum without being damaged, Duval has been forced to blast. Two successive charges of Atlas 40 per cent gelatin dynamite, in 5-pound, 30-inch-long sticks, are used.

Excavation job

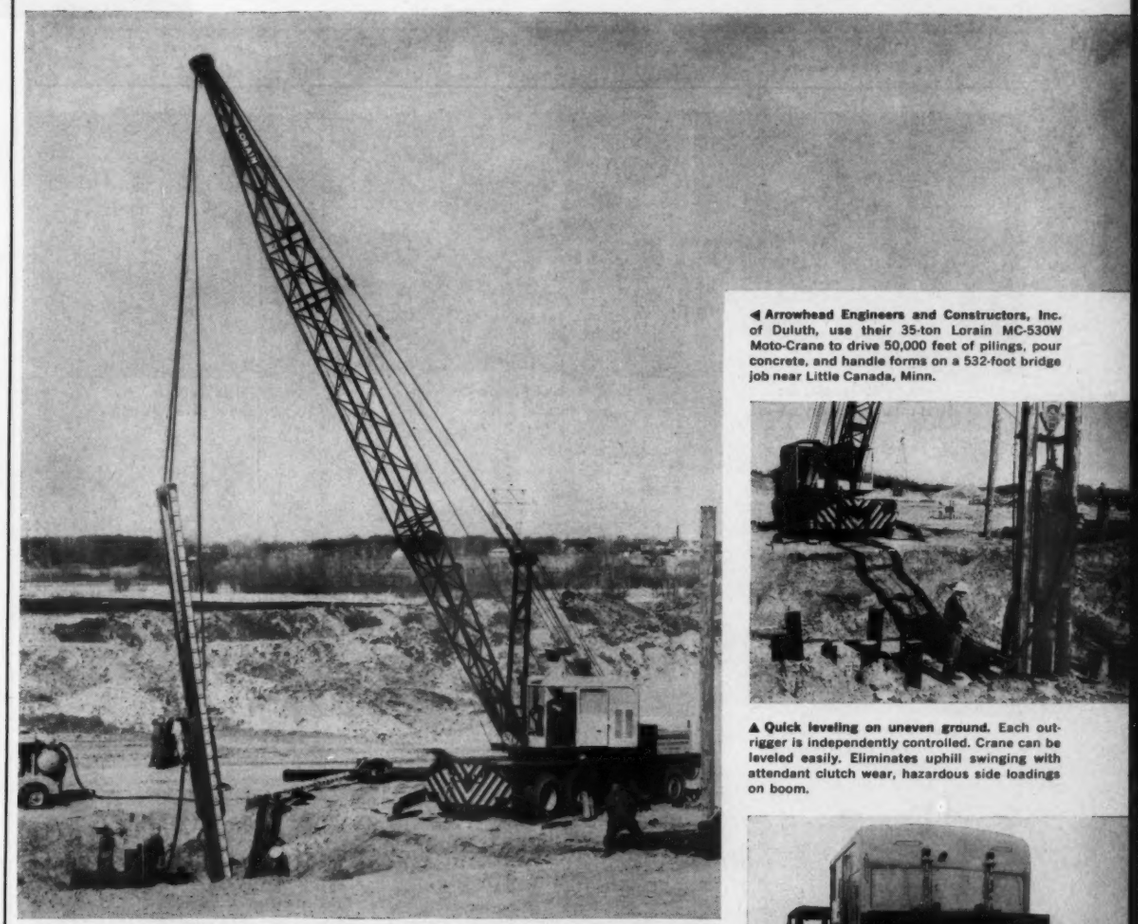
Before actual drilling operations began, however, Daniel Construction removed over 100,000 cubic yards of muck and silt, 7,000 wood piles, and boulders from the river bottom. This was done to expose the stratum of rock or, wherever possible, clean, usable sand. Because the sheeting bulwark will be backfilled, all the unsuitable material had to be removed. The entire area was first excavated to depths of 16 feet below the water surface by a dragline and a barge-mounted derrick equipped with a clamshell bucket. The dragline loaded dump trucks, and the derrick loaded barges, with the excavated material. The excavated area was then dredged to make sure that either the rock or clean sand stratum was exposed.

Drill barge

Blast-hole drilling on 3-foot centers along the line of the bulwark sheet piles is being handled by a Failing 1500 truck-mounted drilling and coring rig mounted on a barge.

(*Continued on next page*)

For more facts, circle No. 256→



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For details, see your Lorain distributor or write for booklet.

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*Patented

◀ **Arrowhead Engineers and Constructors, Inc.** of Duluth, use their 35-ton Lorain MC-530W Moto-Crane to drive 50,000 feet of pilings, pour concrete, and handle forms on a 532-foot bridge job near Little Canada, Minn.

▲ **Quick leveling on uneven ground.** Each outrigger is independently controlled. Crane can be leveled easily. Eliminates uphill swinging with attendant clutch wear, hazardous side loadings on boom.

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LORAIN®
ON THE MOVE

While holes are being driven, a Manitowoc positions leads to a 30-degree batter for driving one of the tension piles making up the tie-downs for sheeting. There are two rows of batter piles, one battered toward the bulwark and one away. A tie-back cap will be cast over them to hold the tie-rod attached to the bulwark.

At this point, the Manitowoc gets ready to drive an H-pile for one of the tie-downs supporting the sheeting wall. The hammer is a Vulcan Super 50-C air-operated unit.

(*Continued from preceding page*)

The drilling is done through a ste casing, which is lowered to the riv bottom and positioned by a tran fix. During drilling operations, wat is pumped through the hollow dr rod to force the cuttings up throu the casing.

After drilling for its entire dept the drill is raised and removed fro the casing. The stick of dynamite then dropped through the casing the bottom of the rock stratum. Aft this charge is set off, a second dyna mite stick is lowered through th casing until it reaches about the mid point of the rock layer. This secon charge is then detonated, shatterin the top half of the rock stratum.

Barge winches, pulling again anchor cables, then move the casi to the next position, 3 feet awa This blasting technique permits Du val to drive the sheet piles into th underlying marl with a McKiernan Terry S-8 hammer. Sheets are s with a Vulcan 50-C.

H-beam tie-backs

Duval is also driving 12 BP 53 H piles on a 30-degree vertical batt to form the tie-backs supporting th bulwark sheeting. The piles are abo 50 feet long and are driven for almo their entire length by a Vulca Super 50-C to rock refusal. An In gersoll-Rand 900-cfm air compress mounted on the barge, supplies a for the hammer.

There are two rows of batter pil one battered toward the bulwark an one battered away. The former a compression piles and are spaced 4½-foot centers. The piles batter away from the bulwark are tensi piles and are spaced on 9-foot cen ters. These piles must attain an ex traction value of 60 tons to preve any overturning action.

A tie-back cap, 3½ feet wide an 3 feet 3 inches deep, will be cast ov the tops of the two rows of piles hold the tie rods attached to the bu wark. This will be done by having 3½-inch-diameter pipe sleeve pas ing through the tie cap on 6-fo centers. The elevation of this slee is plus 1.0 feet. The tie-back cap parallel to and 45 feet from the she piles making up the bulwark.

The bulwark is connected to th tie-back cap by a 2½-inch-diamet

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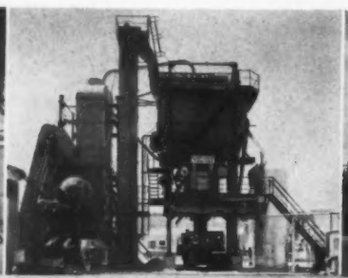
Stroudsburg, Pennsylvania



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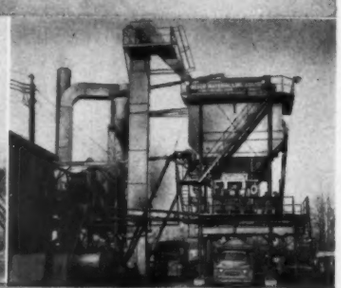
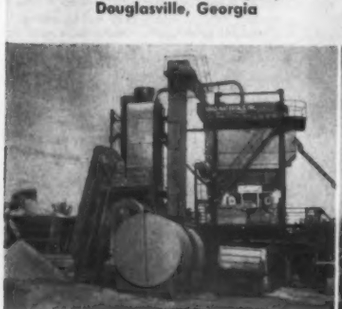
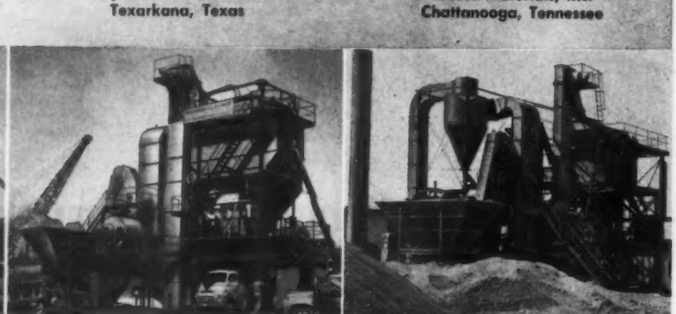


Wesco Materials, Inc.
Chattanooga, Tennessee



Road Materials, Inc.
Huntsville, Alabama



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upended steel rod that is passed through the cap sleeve, bolted, and then bolted to the horizontal wale bracing the sheet piles. The tie-rods and batter piles will be doubled up at five locations along the bulwark where mooring bits will be installed. Duval drives and Daniel forms the tie-back first in order to support the sheet piles as they are driven.

Sheeting cut and capped

As the bulwark sheeting is driven into place, Duval cuts each second pair of piles to an elevation of plus 4.8 feet. The pair of piles in between is cut off at an elevation of plus 1.8 feet. A concrete cap will cover the top of the sheeting wall to a plus 5.8-foot elevation, which will be extended down to minus 2.85 feet on the river side and to minus 2.35 feet on the other. This will completely hide the sheeting from sight. French filter is used to prevent loss of fill through weep holes, 3 feet on centers in the sheet piling and 6 inches below the concrete cap.

Daniel is placing over 150,000 cubic yards of backfill in the area. This material is hauled in by dump trucks and spread with a Cat D7 tractor-dozer. Before Duval started work on the bulwark, Daniel had Duval bring in 45,000 yards of backfill by barge to extend the shore line and replace the area excavated previously.

Personnel

H. H. Chambliss is the project manager; A. A. Merritt, the superintendent; and Clyde Aul, the project engineer, for Daniel Construction. Moran, Proctor, Mueser & Rutledge, New York, N. Y., is the consulting engineering firm for the railroad. D. B. Packard is the resident engineer for ACLR. THE END

SPREADING SHALE ON A TEMPORARY ROAD is this International Drott TD-20 4-in-1, working in Nicholas County, W. Va., The road will service a tipple while a 2-mile rail spur is constructed to connect with the main tracks of the New York Central railroad. The project calls for maximum side cuts and fills of 56 feet in depth. Some 10 per cent of the estimated 120,000 cubic yards of unclassified excavation is rock.

Napco acquires rights to steering-axle line

Napco Industries, Inc., Minneapolis, has acquired the manufacturing and sales rights for Center Line steering axles from Transportation Engineering Components, Inc. The axles are now being manufactured at Napco's home plant.

Initial production features the 15,000 and 18,000-pound-capacity axles; however, other weight classifications have been planned. Napco will market the axles through its dealer setup.

Euclid holds three-day service training school

Maintenance men and supervisors representing companies in the construction, mining, and logging industries recently attended a 3-day service training school in Port Arthur, Ont., Canada. Sponsored by Blackwood-Hodge Equipment Ltd., Ontario dealer for Euclid Division, General Motors Corp., Cleveland, the course covered trouble shooting and maintenance of various components on Euclid rear-dumps.

Factory instructors from Euclid's service training division conducted the courses. Those attending disassembled and rebuilt major components of the rear-dump equipment.

Atlas Masonry Cement

Great new things are shaping up in concrete block

Exciting new masonry walls, exterior or interior, are made possible with decorative masonry units now available from concrete block manufacturers. For example, this unusual masonry wall was created by Architect Victor Lundy of Sarasota, Florida, for showing at Cleveland meeting of National Concrete Masonry Association. The block was produced by Shaffer Block Works, Somerset, Pa.

Atlas Masonry Cement measures up to the new masonry

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Surveying Washington

by E. E. HALMOS, JR.

Three legal decisions of interest to contractors

Three recent court cases should be of interest to contractors.

The U. S. Supreme Court agreed to review a lower-court decision that a contractor's total business operation should be considered in deciding whether his operation is legally in interstate commerce. The case arose in a strike on a motel construction job in Florida, where the contractor sued in federal court for relief. The union contended that the job was local, but the Court of Appeals said that other work being performed by the contractor was enough ground to state he was engaged in interstate commerce.

A federal grand jury indicted the Arizona Consolidated Masonry and Plastering Contractors Association and five of its officers on charges of violating the Sherman Anti-Trust Act. The jury stated that since 1951 the defendants have engaged in a conspiracy to boycott contractors who do not limit their work to association members; refused to hire workmen who work for non-cooperating general contractors; and enforced bidding rules which "unreasonably restrict" the making of bids by subcontractors.

Even if you are doing construction for a state governmental subdivision like a county, a labor dispute is still subject to NLRB action, not to state courts. This is the Supreme Court's ruling in a case involving Dou County, Wis., one of its nonunion contractors, and the plumbers' union. State courts had acted on the ground that, since the county was involved, federal laws did not apply. The Supreme Court disagreed: even though the county entered the matter when union pickets stopped work on its $450,000 courthouse, and sought an injunction to stop the picketing, the county is not exempted from provisions of the federal law, and state courts "must yield jurisdiction" to the body (NLRB) that Congress has selected.

Highway Trust Fund short, but plan on heavy contracts

Although Congress is moving with almost glacierlike slowness on solving the shortage of funds in the Highway Trust Fund, it is still a safe bet to plan on continuing heavy highway contracts.

The Bureau of Public Roads is prepared to delay its apportionment of funds to the states, due July 1, well into July or even August, if necessary, in order to take advantage of any funds Congress finally supplies. The result could well be an immense increase in work for highway-department staffs, but not a serious break in the continuity of contracts for the big Road Program.

Because of the increasing number of vehicle registrations, tax collections for the Highway Trust Fund are actually running about 6½ per cent over the original estimate. But—and it's a big "but"—BPR figures that the cost of the Interstate System, if completed as scheduled, will go up about $13 billion over the original $26 federal-share estimate. The reason is more urban exchanges, additions of other features, plus the rise in general costs.

Reclamation engineers in hot water with Congress

The Congressional blowup about Bureau of Reclamation engineers being employed—while still on government payrolls—by consulting engineers for private work was not unexpected in Washington. One result is an order that such extracurricular work be stopped; another may be legislation on the subject.

The fury started during closed-door hearings on Reclamation's appropriations, when Rep. Ben F. Jensen (R., Iowa) questioned newly appointed Commissioner Floyd E. Dominy about

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KING OF THE CRAWLERS

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a bureau engineering division chief, in the Denver office, who was employed by a private consultant to testify as an expert witness in a Federal Power Commission hearing concerning the Skagit water development in Seattle, Wash.

Jensen argued that such work by a government employee was criminal violation of federal law, and he demanded a list of other employees who have done outside work. Dominy produced a list of 214 engineers in Denver who had done outside work since 1945. He came strongly to the defense of his staff, with the plea that they were doing the work on their own time, after hours or on annual leave; that the bureau's staff represented the nation's top reservoir of hydraulic-engineering talent; and that he knew of only two cases—the one brought by Jensen and one other—where any question of conflict of interest could arise.

Who pays for reconstruction, removal of utilities in roads?

The knotty problem of who pays for removal and reconstruction of utilities that are now in public roads needed for the interstate highway program will come up for Supreme Court determination this session.

The case concerns Tennessee, where a state law calling for the state to reimburse public utilities for all such relocations has been challenged as unconstitutional under the state constitution. That document bans the use of state funds to aid corporations and others.

But the point raises another question: If the state cannot pay for relocation, and thus imposes all relocation costs on the public utilities, doesn't that amount to confiscation of their property, which is expressly forbidden in the 14th Amendment to the U. S. Constitution?

New plans for community near Hell's Canyon Dam

Something new in the development of the community of Page, Ariz., is on the planning boards of the Bureau of Reclamation. The community is on the Utah-Arizona border near the site of Hell's Canyon Dam.

Although the government is donating the townsite, building 200 homes, a school, roads, sewers, etc., it is working as fast as possible to push the community into its own municipal government. Memories of Boulder City—not yet under municipal control—are prompting the action.

The way it will be done is this: the government figures the eventual population will be about 3,000, but a new lake will attract thousands of tourists, thus bringing in motels, service stations, and other business. The government will retain title to the 200 homes it figures will be needed for maintenance personnel, and will sell lots for another 200 or more homes, as well as sites for a shopping center, motels, etc.

As soon as possible, the government will turn over—as its contribution in lieu of taxes—paved streets, sewerage and water systems, and the like, and get out of the city-running business.

Time limit extended on Buy-American act

If you have been planning to use foreign-made materials in making bids on highway work, you have another six months of grace before provisions of the Buy-American act are brought into play against your bid.

Federal Highway Administrator Tallamy—who recently issued a circular memo to state highway officials authorizing them to restrict the use of foreign-made materials on federal-aid highway work—now has extended the time at which such restrictions should be applied to January 1, 1960.

At that time, among other things, bid prices for any item containing foreign-made material will have to include applicable duty and all costs after arrival in the U. S.; bids including foreign materials will be raised by 6 per cent of the bid price.

Public-works bills to bring more construction projects

The $1.2 billion public-works bills, that finally cleared the House, total almost exactly what President Eisenhower had asked in his budget message. They provide roughly $863.5 million for the U. S. Army Corps of Engineers' civil works; $253.4 million for the Bureau of Reclamation; $15.2 million for TVA; and $32.6 million for Bonneville power administration.

Democrats, by juggling some of the funds, provided for planning and construction of some 49 flood-control, reclamation, and navigation projects, although the Administration had issued orders banning "new starts."

Construction gets slice of NASA appropriations

The $480.6 million appropriation to carry on work of the new National Aeronautics and Space Agency contains about $52.3 million for construction work.

Included are structures at Langley Research Center, Hampton, Va.; $6.6 million for a data reduction center at Moffett Field; $6.9 million for research facilities at Lewis Research Center, Cleveland; $2.8 million for a high-speed flight station at Edwards Air Force Base, Calif.; $14 million for a central flight control building and other structures at Beltsville, Md.; $3 million for work at the Pacific Missile Range, Point Arguello, Calif.; and $15 million for global range and tracking installations.

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Complex shoring is required for the Universal form assemblies during work on turbine supports for the Potomac Electric Power Co. plant near Dickerson, Md. The truck crane, left, is placing mix for the footings.

Prefabricated formi ep

A number of time-saving techniques enabled Stone & Webster Engineering Corp., Boston, Mass., to get one of two generating units on the line and meet the construction schedule for a $55 million power plant. The project, being built by the Potomac Electric Power Co., Washington, D. C., is located on a 1,000-acre tract next to the Potomac River near Dickerson, Md.

One of the things that saved the firm a lot of time was the use of about 25,000 square feet of prefabricated form sections. The sections, furnished by the Universal Form Clamp Co., consisted of standard 2×3 and 2×6-foot Uni-Form panels. They were assembled into a large form section on the ground, and the entire unit was then positioned by a crane. The result was that the forming crew could be reduced to a minimum and stripping operations speeded.

The fabricated form assemblies were tied to the concrete lifts by Spiroloc form ties, which were passed through the vertical steel channel bracing between form sections. Horizontal and vertical alignment lumber was used to line up the form assemblies. Each Uni-Form section consisted of ½-inch-thick plywood

(*Continued on page 19*)

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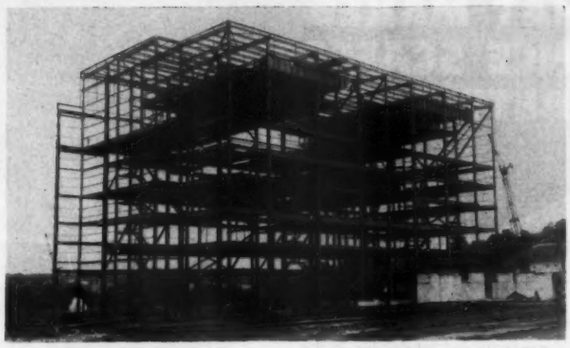
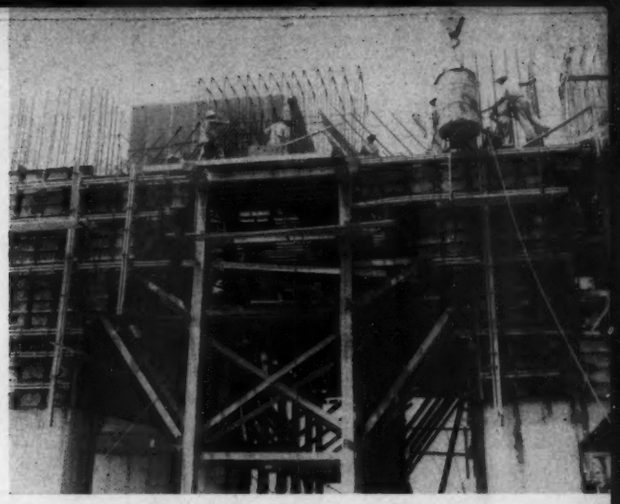


...the 7,000 tons of struc-...l required for the project ... into the powerhouse, ...verlooks the Potomac. ...on and erection are han-...Bethlehem Steel.



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backed up by a 2½-inch-deep steel frame. Individual form panels were joined by special ties and keys that made the assembly or disassembly of form sections a fast operation. The Uni-Form panels were re-used to build the two reinforced-concrete turbine supports, each of which required about 22,000 square feet of forming.

The plywood facing on the panel frames was covered with Harborite to increase the life of the plywood. Harborite, a resin-impregnated fiber permanently fixed to the plywood, is manufactured by the Harbor Plywood Corp., Aberdeen, Wash.

Concrete batch plant

Production of about 38,000 cubic yards of concrete required for the new plant is being turned out by a Fanning-Schuett batch plant located next to a railroad siding near the job. The plant includes a Johnson 880-barrel cement silo, and the cement compartment of the 4-compartment aggregate bin provides an additional storage capacity of 120 barrels.

The 150-ton bin has three aggregate compartments—one for No. 8 stone, one for No. 6 stone, and one for sand. Two 80-foot enclosed elevators leading from ground-level hoppers are used to charge sand and stone into the compartments. One elevator, equipped with stationary chute, charges sand; the second has a 2-way chute for the No. 6 and No. 8 stone compartments. An International TD-6 tractor equipped with a Drott 1¼-yard front-end bucket charges the hoppers from the stockpiles.

On this early part of the job, cement delivered by bottom-dump rail cars was charged into the silo or cement compartment by means of an enclosed elevator fed by an undertrack hopper and screw conveyor. The cement, sand, and stone were weighed manually—a Detecto scale being used—and released into a 5-yard weigh batcher. The batcher was manually released to charge the truck mixers. A water line supplied the truck mixers with water at the plant. Rex, Worthington, and Jaeger mixers were used to mix and haul the 3,000-pound concrete to the point of placement.

Concrete was handled by a Bay City truck crane and a Lima crawler crane, equipped with 1 and 2-yard concrete buckets. Consolidation was done with Mall electric vibrators.

Forms were stripped after 24 hours along vertical surfaces but left in place under horizontal surfaces. These forms were supported by timber shoring, which was also used to support any inclined concrete surfaces.

Over 612,000 cubic yards of earth and 387,000 yards of rock had to be excavated for the various facilities of the plant, which include the main powerhouse, the railroad and coal-car dumper building, and the two turbine supports. The deepest rock cut, over 45 feet, is found at the coal-car dumper building.

Stone & Webster sublet this ex-

(Continued on next page)

For more facts, circle No. 263→

The job's Fanning-Schuett concrete batch plant is fed with aggregates by an International TD-6 with Drott 1¼-yard front-end bucket. The 80-foot elevator at left has a stationary chute for sand; the one at right has a 2-way chute for the two sizes of stone.

Cement is delivered to the plant by rail; an undertrack hopper and screw conveyor feed the enclosed elevator charging the silo.

NEW CAT DW20 SERIES G TRACTORS "FASTER HAULING AND EASIER LOADING"

Bryan Carl, Partner, Dean Word Co., New Braunfels, Texas

That's the substance of the many field reports coming in from contractors everywhere! The new DW20s, matched with new No. 482 Series B Scrapers, are paying off with faster cycles, greater production and more profits!

Here you see one of two new DW20s hauling on a section of Interstate Highway near New Braunfels, Texas. With a D9 pushing, average loading time is 30 seconds. Partner Bryan Carl of Dean Word Co. says: "Our new DW20 Series G Tractors are faster hauling and easier loading. Caterpillar-built equipment has longer life with less down time—it stays on the job better. We get excellent service from our Caterpillar Dealer."

Look at the ratings on the new DW20-No. 482. To handle the increases in horsepower, rimpull and scraper ratings, both tractor and scraper have been improved in design and structure. The tractor, for example, has stronger final drives and improved transmission forks. The scraper has a stronger bowl, push frame, draft frame and apron. Result: better service life, less maintenance and cheaper dirt.

Here's a four-wheel rig that meets your needs for higher, more economical production on today's big jobs. Ask your Caterpillar Dealer for complete facts about it. See for yourself how the new DW20-No. 482 can step up your production!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

NEW DW20-No. 482

	SERIES G	SERIES B
NEW HP	—345 (maximum output)—	increased 8%
NEW RIMPULL	—39,565 lb. (maximum)—	increased 12%
NEW SPEEDS	—increased rimpull provides up to 20% faster travel speeds under similar haul road conditions	
NEW CAPACITY	—24 cu. yd. (struck) 34 cu. yd. (heaped)	

Corresponding increases have been made in the new two-wheel DW21 Series G Tractor.

CATERPILLAR

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HAUL AT LOWEST COST PER CU. YD.

Warehouse facilities and shops for various trades at the site are provided by these three Armco metal buildings. The Dorsey trailer, pulled by a Mack truck, is being loaded with steel by a Bay City crane.

(*Continued from preceding page*)

cavation work to Morauer & Hartsell, Inc., Washington, D. C. M & H gave part of this work to C. J. Langenfelder & Son, Inc., Baltimore, Md., since the latter had just completed a sizable excavation job nearby and had a lot of equipment available and ready for work.

A fleet of Caterpillar DW21 scrapers was used to strip the earth excavation, which was started by a Cat D9 with a ripper attachment. This earth excavation was used to build up the switchyard and the new railroad bed servicing the plant. The remaining earth and rock excavation went into a temporary cofferdam, built so that the intake screen well could be built in the dry.

Rock drilling was handled with a combination of Gardner-Denver Air Tracs and Cat D8 tractors equipped with jib drills. After blasting was done, the rock was loaded into Euclid rear-dumps by three 2½-yard shovels.

Powerhouse

About 7,000 tons of structural steel, fabricated and erected by Bethlehem, is required for the project. Most of the steel tonnage is being erected by a pair of Lima crawler cranes for the main powerhouse building. The powerhouse will have two steam boilers to power the pair of turbines.

Four pumps, to be set in the intake structure, will feed water to the power plant. Two pumps will handle the condenser water per boiler unit. This water will be pumped to the condensers through two reinforced-concrete encased, light-gage 78-inch-diameter metal conduits—one for each condenser. Makeup water will be manufactured by the plant through distillation to replenish the water used by the boilers. The pumps will also feed a 24-inch line supplying the necessary fire-fighting equipment.

The new plant will add 350,000 kw to the existing system of Potomac Electric when the second generating unit is put on the line, but this will not be before the spring of 1960. The power company, serving over 1½ million people, has an area encompassing 643 square miles. This includes all of Washington, D. C.; 63 per cent of Montgomery County; 52 per cent of Prince George County; and 12 per cent of Arlington County. Though the area is primarily residential, one of the largest of the company's customers is the Pentagon.

The Dickerson plant, the fourth generating facility of the company, will be linked to the two plants in Washington, D. C., and one in Alexandria, Va., by 45 miles of 230,000-volt transmission line. At present the capacity of Potomac Electric is 1,062,000 kw; by means of an interconnection with the Baltimore Gas & Electric Co., it is guaranteed an additional 35,000 kw of firm capacity.

Personnel

Over-all supervision of the project is being handled by L. W. Cadwallader, vice president and mechanical engineer for Potomac Electric. Ben MacDonald is the project manager for Potomac Electric. H. I. Stewart is the superintendent; F. R. Hanson, the assistant superintendent; and John R. Wilson, the resident engineer for Stone & Webster Engineering Corp. THE END

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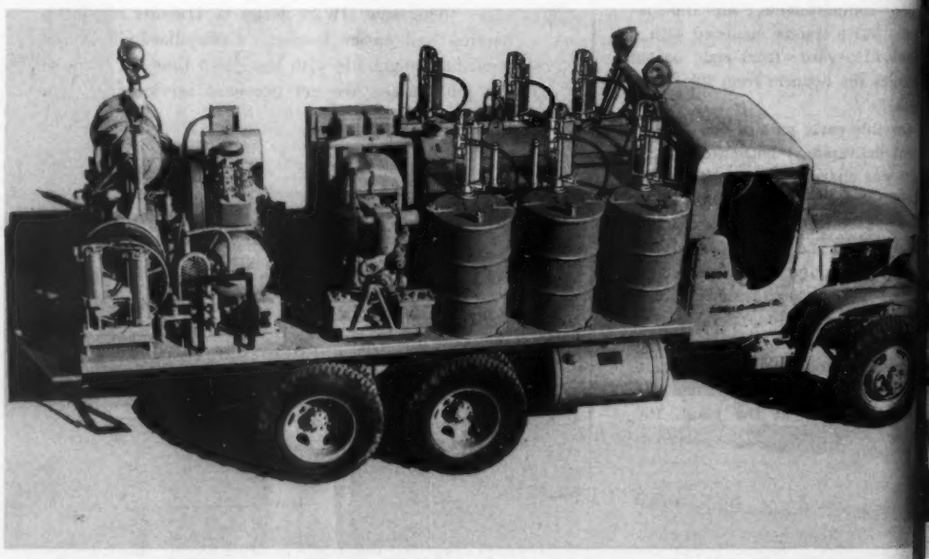


Lincoln Lubrovans and Lubmobiles are available in various standard combinations of air compressors, air-motor operated drum pumps, automatic retracting reels and hose assemblies, and accessories for the most frequently required services, such as Trac-Roll and Chassis Lube, Motor Oil, Gear Oil, Air and Water, Lift Oil and A.T.F., Gasoline and Diesel Oil.

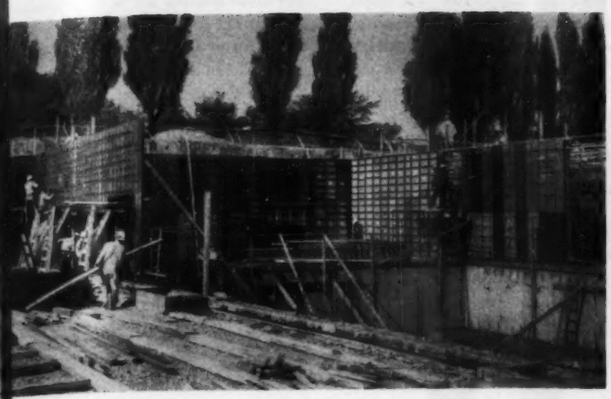
Lubrovans feature 400 lb. drum size pumps, and Lubmobiles are designed to include 120 lb. drum size units.

These portable rigs can help you increase your profit margin on construction jobs by reducing costly lubrication down-time (as much as 50%) . . . protecting against bearing and parts failure . . . extending equipment service life.

Coast-to-Coast Sales and Service
Through Leading Automotive Wholesalers
and Industrial Distributors.

LINCOLN ST. LOUIS

*Trade Name Registered



A TACTICAL FACILITY for Fort Lawton, Wash., takes shape as reinforcing steel is placed and Symons steel-ply forms are erected and made ready for concrete. The job met stiff Army requirements for both surface and pattern left by the forms. Only one horizontal line was permitted at the same level around the building. Vertical lines had to be uniform. Over 200 yards of concrete was placed at a time.

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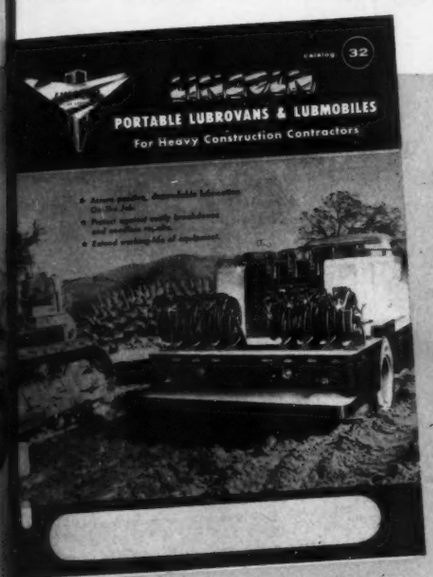
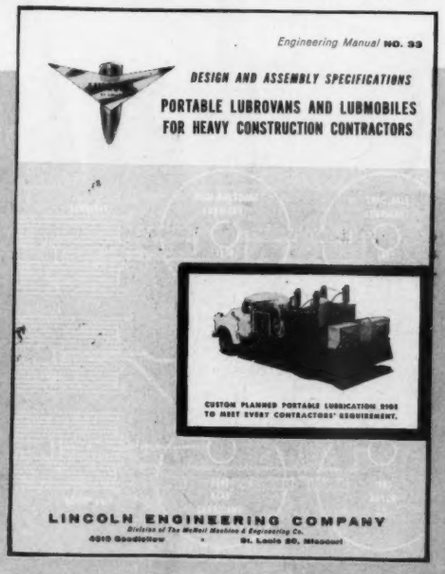
ustom-Planned Groups to Meet Special Requirements





CATALOG NO. 32

Illustrates and describes complete range of Lubrovans and Lubmobiles, their equipment and accessories engineered to meet any on-the-job lubrication need.

ENGINEERING MANUAL NO. 33

Provides complete technical information on designing and assembling custom-planned portable lube rigs from Lincoln Pumps, Lubreels and accessories. Includes sizes, dimensions, capacities, operation, maintenance procedures, etc.

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For more facts, use coupon or Request Card at page 18 and circle No. 264

Tunnel engineering developed in new book

A comprehensive survey of tunneling methods, and of the developments which have affected tunneling practice in recent times, is contained in "Tunnel Engineering," by Rolt Hammond.

After a brief history of tunneling, there is a chapter on lining methods, with practical examples of the various types. A chapter on shield tunneling uses descriptions of the London underground system and the Hull drainage system, plus an account of the Bridge system. Subaqueous tunneling, the next subject, covers the use of compressed air, the difficulties of working in high pressures, and the regulations governing safety under these conditions.

Rock tunneling is covered by such topics as a shaft-sinking problem, use of explosives, drilling method, overbreak, mucking procedure, shuttering system, concrete workability, temporary support, water seepage, and grouting quartzite and crushed sand. The next chapter, on tunneling through difficult ground, details such topics as chemical injection, wellpoint system, filter drainage, electro-osmosis, vibration of soils, site conditions, bitumen and cement grouting, resistivity measurements, seismic methods, uneven bedrock surface, and determining rock velocity.

Tunnel survey methods, fully developed in chapter 7, cover alignment, setting out tube tunnels, guiding a shield, various theodolites, and setting up instruments. Construction problems of long tunnels are dealt with in the concluding chapter. The book abounds in pictures and diagrams.

Priced at $11, the book may be purchased from The Macmillan Co., 60 Fifth Ave., New York 11, N. Y.

Laclede gives test frame to Washington University

A structural frame for testing the strength of steel joists, trusses, and slabs up to 48 feet long has been installed on a massive-force test slab on the lower floor of a new engineering laboratory building at Washington University, St. Louis. The 50×15×5-foot frame is a gift from Laclede Steel Co., also of St. Louis.

The total value of the unit is $30,000.

One of three such installations in the country, the frame is equipped with a series of hydraulic jacks, each capable of exerting up to 20 tons of pressure on the object being tested. Stupp Bros. Bridge & Iron Co., St. Louis, has made a major contribution for facilities incidental to the unit.

Daybrook appoints

H. J. Lewinski has been appointed Central Zone manager for the Daybrook Hydraulic Division, Young Spring & Wire Corp., Bowling Green, Ohio. He will work with the division's truck-equipment distributors in Illinois, Wisconsin, Michigan, Indiana, and Ohio.

We drive piles— the Soviets shake 'em down

Visiting engineers reveal vibratory driving techniques for piles and sheeting at USA-USSR engineering seminar

by M. D. Morris, ASCE
Consultant, New York, N. Y.

Vibratory pile driving in the Soviet Union is not just a "shakedown," it is the general practice. This came out at a joint USA-USSR Soil and Foundation Engineering Seminar held last month at Princeton University.

All but a very few of about a hundred invited U. S. engineering participants were surprised to learn that, for the past decade, Soviet engineers have been successfully using vibratory methods to drive piles, sheeting, caissons, sand drains, and soil-sampling tubes.

Many topics

Among the many mutual technical problems discussed, that point evolved as the major one in the meeting sponsored by the Highway Research Board of the National Academy of Sciences and the American Society of Civil Engineers, in cooperation with the Academy of Construction and Architecture, USSR.

In response to the greetings of Prof. W. M. Angas of Princeton and HRB's Fred Burggraf, the chairman of the Soviet delegation, academician I. M. Litvinov, expressed the hope that along with the solution of foundation-engineering problems, both groups would also seek a basis to build a firmer foundation for peaceful cooperation between our two great countries.

Permafrost problem

Prof. N. A. Tsytovich's paper, in English, on "Problems of Frozen Soil Mechanics in Engineering Practice" was followed by a panel discussion, on permafrost construction techniques, which was moderated by G. W. McAlpin of the New York State Department of Public Works. The panelists, Prof. A. R. Jumikis of Rutgers, R. R. Philippe and F. J. Sanger of the U. S. Army Corps of Engineers, and H. F. Winterkorn of Princeton, found few differences in the techniques of construction in permanently frozen ground.

Princeton's Prof. G. P. Tschebotarioff, the prime motivator and general interpreter for the entire seminar, was chairman at a luncheon, after which W. H. Wisely, executive secretary of ASCE, spoke about the professional societies of the U. S. and their independent, nonprofit operations.

Then came the revelation. In a film, "Vibratory Driving of Piles and Sheet Piles," with English sound track (a film prepared for a previous soils-engineering meeting) the Russians showed that vibration with direction could excel in this type of operation. To illustrate the basic concept, a vibratory kitchen mixer was filled with sand and topped with a steel ball of golf size. When the jar was vibrated, the ball sank to the bottom. Then, a ping-pong ball was placed in an empty blender jar and buried under the same type of sand. After vibration began, the ball rose and emerged on top.

Now, after ten years of development and practice since their fir BP-1, the method can be used to dri an average 60-foot steel H-pile 2 times faster in any soil than by th conventional hammer method. R. A Tokar, director of the Institute o Foundations of the Academy, USSR said later that steel sheeting can als be driven with this same time advan tage. Added advantages are the com parative silence, steady penetration and not too great variance in th cost of power, operation, and main tenance. The big economy comes h sheeting withdrawal, he said, fo

NEW from LeTourneau-Westingh

6-WHEE

276 hp...20 yd heaped...37.7 mp

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Easy-loading Fullpak® Scraper Design: Low angle loading, with wider entry for dirt. The fastest-loading scraper of all!

Hydrair* **Suspension:** Ride on air, not steel! Higher ground clearance, no axle-dozing action. Fast, short turns!

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Spot-Turn Brakes: Hand-lever actuates brake on either drive-wheel for immediate, sharp turns . . . to aid or replace front-wheel steer in soft going!

3,764 Sq In. Brake Surface: Biggest brakes in the in for SURE stops. Also available: brake-saving Electrotard

Power-Transfer Differential: Automatically transfers from spinning drive-wheel to wheel on better footing!

***Free-Oscillation* Hitch:** Scraper can "twist" 30° right of prime-mover, 27° downward, and 25° upward!

Easiest to Maintain: Strongest frame; quickest acces of components; and only one lube point needs daily s

For further details on the new C Speedpull a your LeTourneau-Westinghouse Distributor.

sheeting can be shaken out easily, and in an unbent, re-usable condition, in cases where diesel or steam rigs had failed.

The film also showed how the vibratory motor was fixed to the wood, steel, or concrete-pile top. Leads or guides were or were not used, depending upon local conditions. Batter piles were driven at all angles. Hollow, precast-concrete piles up to 9 feet in diameter were driven, open-ended, and later the trapped material was vibrated loose and blown out, leaving the hollow casings.

Mandrels for sand drains with special cherry-picker-type winged points were driven. When they were filled with sand, vibration did the dual job of settling the fill grains and withdrawing the shell at one time.

Continuous soil sampling to any depth is possible by vibratory driving of the sample tube. However, this only serves to get the depth and character of the strata changes for boring logs, since the vibrations cause disturbance in the sample core structure, rendering it useless for precise consolidation and triaxial testing.

M. M. Levkin, chief engineer, Department of Large Bridges, USSR, then delivered his paper on the practical field aspects of driving caissons for bridge construction. He disclosed that precast sections up to 18 feet in diameter were driven in all soil types by large vibratory drivers capable of delivering downward forces reading 250 tons. These machines were over 9.84 feet in height. It was also shown that some case combinations required high-frequency vibrations of small amplitude and others needed massive forces of low frequency and large wave lengths. Special cases were accomplished by use of combinations where curve forces were added.

A second panel followed, moderated by Prof. J. Slade of Rutgers, with Prof. R. K. Bernhard of Rutgers and Prof. W. Schmid of Princeton; Dr. J. Lowe III, Tippetts, Abbett, McCarthy & Stratton; and W. P. Kinneman of Raymond International, who said that this company had done some experimental work with vibratory methods, but as yet not to any conclusive ends. Dr. Tschebotarioff pointed out that all the papers and data given at the sessions would soon be published by the organization. Prof. Tsytovich has written a rather advanced book on special dynamic soils engineering, which has been translated and edited by Dr. Tschebotarioff and will shortly be published.

H. P. Brooks, U. S. State Department interpreter for the delegation, explained that soil mechanics was only one part of the broad aspect of total design and construction in which the Soviets had interest. Present in addition to those previously mentioned were A. V. Gladyrevskiy, chief specialist of construction layout of the State Construction Commission, and Prof. V. M. Bezruk of the State Highway Research Institute. A post-session tour of major construction works in and around New York City and a dinner at the Engineers' Club were arranged by S. J. Johnson, chairman of the Soil Mechanics Division, ASCE.

The Princeton seminar was the first of a series of four such programs. A visit to Washington, D. C., followed.

THE END

SPEEDPULL*

PARADE OF PROGRESS

New 6-Wheel Scraper Added to LW Line of Earthmovers

PEORIA—A fast, high-production, six-wheel scraper is announced by the LeTourneau-Westinghouse Company, pioneer manufacturer of rubber-tired earthmoving equipment. Named "Speedpull", the machine teams a 20-yd Fullpak scraper with a new 276-hp 4-wheel prime-mover, and offers speeds to 37.7 mph.

Designed specifically for top production on long-haul earthmoving jobs, Speedpull was given intensive on-the-job tests for 18 months before being placed on the market. Performance records on these jobs were outstanding, and the machine is expected to gain wide and immediate acceptance as a companion unit to LW's 4-wheel Tournapulls®.

Advantages of the Speedpull include revolutionary new Hydrair suspension, an exceptionally favorable power-to-weight ratio, "feather-touch" full-power steering, and new "spot-turn" brakes. In addition, the unit offers job-proven Tournapull features, including the world-famous LW power-transfer differential, electric control of scraper, and easy-loading Fullpak design.

Many advantages with Hydrair

Most *unusual* feature of Speedpull is Hydrair suspension, which mounts Speedpull's front wheels to pistons, to serve as giant shock absorbers. The machine rides on air, and no front axle is necessary. This makes for higher ground clearance and eliminates trouble-some axle "dozing" action. The no-axle feature permits shorter turns. Coupled with Speedpull's full-power steer, Hydrair permits the 41'2" machine to turn 180° in a space only 34' wide.

New "spot-turn" brakes are standard equipment. This steering system permits braking of either drive-wheel for fast skid-steer action, to supplement normal front-wheel steer in soft going. Braking surface on the Speedpull totals 3,764 square inches, largest in the industry. Auxiliary braking is available with the Electrotarder.

Maintenance costs of Speedpull will be unusually low. The frame is the strongest in the industry, with extensive use of new high-tensile-strength steels. There are only nine grease fittings on the prime-mover. Only one needs daily attention, and the other eight need service only once every 100 hours. And most major Speedpull components can be removed without disturbing other assemblies.

Power-plant for Speedpull is a Cummins diesel, rated at 276 horsepower. With only 336 pounds of total loaded weight per horsepower, the machine outstrips competitive machines in power-to-weight ratio. The 5-speed step-gear transmission is coupled to a two-speed transfer case, offering a total of 10 forward speeds and two reverse. The Speedpull has a large 16" double-plate clutch.

Complete specifications and performance data on Speedpulls are available at LW Distributors.

*Trademark CSP-2144-DC-2

Note: Same easy-loading Fullpak scraper is used on 7-Power C Tournapull announced on next page.

LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

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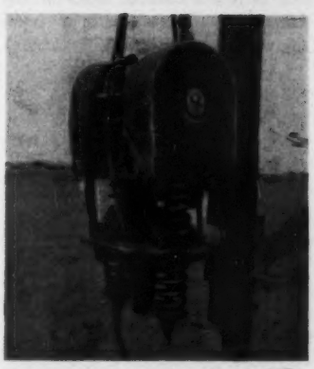

Using vibratory equipment like that shown above, Russian foundation engineers sink all types of piles, plumb and battered, and also extract piles. The Russians say their shakedown technique is faster than driving a pile with a hammer.

To increase paving production contractor tries new ideas to

Keep batch plants as modern as today

New controls and good maintenance procedures keep this Blaw-Knox 100-ton 3-compartment batch plant and Butler cement setup in peak operating condition for Nello L. Teer Co., Durham, N. C. International batch trucks are picking up aggregate, being weighed out with Thurman electronic controls, and cement from the 400-barrel silo, which is also equipped with electronic controls.

A concrete batch plant, in service for a number of years, is still providing Nello L. Teer Co., Durham, N. C., with the production required. A familiar sight on Teer's paving projects, this plant has been kept in excellent operating shape by the addition of new equipment and good maintenance of a site that is neat, clean, and nearly dust-free.

Plant is modern

Teer, constantly alert to new developments, has increased the plant's production and operating efficiency through the installation of automatic controls. When the 100-ton, 3-compartment Blaw-Knox plant was first purchased, the aggregate bin was equipped with Thurman electronic and pneumatic controls.

These, linked with three Detecto scales—one for each compartment—automatically control the amount of sand and stone being deposited in the weigh batcher. It also provides for a "dribble" action of the compartment gates, allowing the aggregates to be discharged more slowly as the last few pounds are released. This prevents the jamming that sometimes results when large quantities of material are passing through the gates. It also results in a more exact and consistent weight of stone or sand released.

Electronic controls

Recently, electronic controls were installed on the Butler cement setup, which has a 400-barrel silo and a 300-barrel bin. These controls, permitting automatic operation of the weigh and dump cycles, increased the production at this setup and raised the over-all efficiency of the batch plant.

Leonard Burris, the manager of the concrete division of Nello L. Teer Co., is responsible for many of the innovations in its batching and paving operations. THE END

SAME elects officers

Vice Adm. W. Orme Hiltabidle (U. S. N., ret.) has been elected president of The Society of American Military Engineers. The new roster of officers also includes first vice president Maj. Gen. Augustus M. Minton; Northeastern regional vice president John A. Reilly; and Midwest regional vice president Danial A. Sullivan.

D. E. Eppert received the 1958 Wheeler Medal; Lt. Comdr. D. G. Iselin, the Moreell Medal; Col. H. K. Kelley, the Newman Medal; W. K. Cloud, the Colbert Medal; W. L. Cisler, the Goethals Medal; and Dr. E. A. Walker, the Bliss Medal.

NOW

V POWER C

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. . . for maximum efficiency in dirtmoving

C Tournapull . . . "Standard of the Industry" . . . is now available with the new GM 8V-71 engine . . . 270 horses of dynamic earthmoving power! Coupled with the "C's" simple, low-dead-weight construction, you get *the best horsepower-to-weight ratio of any scraper in its class!* The world's best medium-sized scraper now gives you extra power to lick the toughest loading condition, to provide quick acceleration, and assure top-speed hauling. Another big new feature of the V-powered C 'Pull® is a cost-saving "drop-out" transmission which can be removed easily without disturbing any other component.

Profit from these recent C 'Pull improvements:

Improved steering . . . new pressure-lubricated transmission . . . better brakes . . . new high-temperature insulation on all motors . . . larger diameter apron drum . . . adjustable side-thrust roller on tailgate . . . transmission oil-pressure gauge . . . new shock-mounted headlights . . . stronger bottom plate . . . better runner-rail reinforcement . . . new axle and inboard axle bearings . . . new converter tank filter . . . new, larger hoses.

PLUS all these job-proven Tournapull money-makers:

FULLPAK® scraper design: lower, wider, for better boil, fewer voids, bigger payloads . . . POWER-TRANSFER DIFFERENTIAL: lets 'Pulls operate in soft going that stops other scrapers . . . ELECTRIC CONTROLS: instant-response, pinpoint-accuracy control, easy-to-operate, easy-to-maintain . . . BIGGEST BRAKES IN THE INDUSTRY: 3,764 square inches of brake surface . . . MORE MANEUVERABILITY: with kingpin steer . . . INTERCHANGEABILITY: switch trail-units behind prime-mover at low cost.

DIRT EXCAVATED for a garage and office in Stow Township, Summit County, Ohio, is loaded into a truck by a Huber-Warco maintainer with lift-loader attachment. The rig is also used for road and berm maintenance and other odd jobs.

C TOURNAPULL®

270 HP

14 yd (struck) 20 yd (heaped)

High horsepower, low dead-weight
Best power-to-weight ratio in its class!

LW PARADE OF PROGRESS

This new V-power C Tournapull and the six-wheel Speedpull* announced on the previous pages are two more additions to an impressive array of new LeTourneau-Westinghouse earthmoving machines. They're part of LW's continuing program of product development to give you highest-production equipment at lowest ownership-operating cost.

Get in step! Your LeTourneau-Westinghouse Distributor has the answers to your questions about these new profit-builders. See him soon!

*Trademark CP-2154-DC-2

LW LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

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Where quality is a habit

For more facts, use Request Card at page 18 and circle No. 266

Prescon opens new office

Dallas is the site of a new office for The Prescon Corp., Corpus Christi, Texas. Kenneth Braselton is in charge of the office, which will make the Prescon system of post-tensioning available to contractors, engineers, and architects.

Symons names ad manager

William J. Tobin has been appointed advertising manager of Symons Clamp & Mfg. Co., Chicago. He was formerly in the engineering department of the concrete form and hardware manufacturing firm.

A-C plans to acquire Tractomotive Corp.

Allis-Chalmers Mfg. Co., Milwaukee, plans to acquire the Tractomotive Corp., Deerfield, Ill., through an exchange of stock. The acquired company will become part of the A-C Construction Machinery Division and complement production at the firm's Springfield, Ill., and Cedar Rapids, Iowa, plants.

One of Tractomotive's principal product lines, a rubber-tire wheel loader called the Tractoloader, is sold through Allis-Chalmers construction-machinery dealers. For many years the two companies have worked closely in manufacturing, and selling construction machinery products.

Film on metal roof deck

"On Deck," a 16-mm sound and color film, shows how metal roof deck is designed and tested, and how it is applied in various kinds of new construction. Prints of the 15-minute film are available free of charge from the Metal Roof Deck Technical Institute, 53 W. Jackson Blvd., Chicago 4, Ill.

American Cyanamid Co. names project engineers

Max Strawn and Bradford E. Blauvelt have joined the project engineering department of American Cyanamid Co.'s Engineering and Construction Division, New York City. Strawn, as a principal project engineer, has been initially assigned to the gas conversion, nitric acid, and ammonium nitrate project at the plant in Welland, Ont., Canada.

Blauvelt has been assigned as project engineer on the expansion of the firm's pharmaceutical plant in Gosport, Great Britain.

APECO names division manager and director

Roger Rush has been promoted to western divisional manager and national training director for the American Photocopy Equipment Co., Evanston, Ill. He will supervise the recruiting, selecting, and administration procedures in the firm's six western regions, as well as develop a nationwide photocopy sales-training program. Rush will have headquarters in the home office.

Drilling and hauling rigs at work on realignment of old highway make

High production on rock work

This Lima 1601 shovel and LeTourneau-Westinghouse Tournarocker combination ready an 18 to 19-yard payload of blasted rock for the 6½-mile relocation of U. S. 35 near Jackson, Ohio. The contractor moved more than 12,000 yards of material in two 9-hour shifts.

Production of more than 12,000 yards of rock and earth in two 9-hour shifts was a regular day's work for the drilling and excavating equipment on 6½ miles of road alignment reconstruction near Jackson, Ohio. The work on U. S. 35, which eliminates the sharp alignment and steep grades of the existing 2-lane roadway, was done by C. F. Replogle Co., Circleville, Ohio. The project provides a 24-foot roadway with 8-foot penetrated-macadam outside shoulder.

Excavate for future

The contractor used all types of excavating spreads to move the 500,000 cubic yards of earth and 700,000 yards of rock. Most of the rock was found throughout the southern two miles of the contract.

Excavation in both cases was done for the eventual 4-laning of the project. The Replogle contract, even though calling for the grading of four lanes, required one of the 24-foot roadways to be paved with 9-inch reinforced concrete. The width of the rock cuts averaged 130 feet.

Spearheading the rock excavation were three drills and a large fleet of hauling rigs. A new Robbins RR10 rotary drill, sinking 9-inch blast holes, and two McCarthy track-mounted drills, boring 6-inch-diameter holes, were used to gouge out rock from cuts as deep as 80 feet.

The Robbins drill bored 20-foot-deep holes through the sandstone in about 2¾ minutes. Mounted on the front of an International TD-24 tractor, and supplied with air from a rear-mounted Ingersoll-Rand 600 compressor, the drill was easily moved over the rough terrain.

Blast holes, driven in 20-foot lifts, were loaded with an ammonium-nitrate and diesel-fuel mixture. These charges were detonated by electric

Earth fill hauled in by scrapers is compacted by a Buffalo-Springfield Kompactor.

←For more facts, circle No. 267

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HARDFACING NEEDS? *This chart gives you quick answer. Use it* to select right rods for prolonging operating life of your equipment. You'll be selecting rods that go on quickly and smoothly, thereby saving labor and downtime. Order from your Victor dealer today.

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RODS FOR MANUAL APPLICATION

This Hardfacing Rod	For These Conditions	This Equipment or use	How Applied
VICTORTUBE (Tungsten Carbide)	Severest abrasion	Earth cutting, scraping, drilling tools, rippers, augers, ditchers, excavators, loaders	Gas AC-DC Arc
VICTORTUBE (TC) Bare 30-Down	Severest abrasion; moderate impact	Agricultural and earthworking tools. Suitable for acetylene application	Gas only
VICTORTUBE "SPECIAL" (Tungsten Carbide)	Severe abrasion with impact	Oil field tools - rock bits, drag bits, reamers; water well drilling tools	Gas only
VICTOR TUNGSMOOTH (Tungsten Carbide)	Maximum abrasion	Edged cutting tools - bits, blades, farm tools. Smooth, thin deposits on augers, screw flights, paddles.	Gas AC-DC Arc
VICTORITE	High abrasion; sliding friction	Earthmoving and agricultural tools, brick augers, conveyors, mill guides	Gas AC-DC Arc
TUBE VICTORITE	Abrasion and impact	Farm tools, crushers, grinders, mixers, scrapers, fan and screw conveyors	Gas AC-DC Arc
VICTORITE 1	Heat; abrasion, corrosion	Chemical & food machinery, cement pumps, brick dies, dry bearings & journals, expellers	Gas AC-DC Arc
VICTORITE 8	Heat; impact; corrosion; abrasion	Hot dies, stripper bits, exhaust valves & seats, dry bearings & journals, edging rolls, cams	Gas AC-DC Arc
VICTORITE 12	Heat; corrosion; abrasion; impact	Saw-blade inserts, shaft bearings, hot punches, flapper valves, needle valves	Gas AC-DC Arc
VICTORITE CARBON ARC	High abrasion; sliding friction	Farm tools, earth abrasion. Applied by gas. Deposits are exceptionally smooth.	Carbon Arc Gas
VICTORITE Plow Point Bar	High abrasion; sliding friction	Cast-to-shape, weld-on cutting edge for plow shares, digger teeth, pilot bits	Gas
VICTORALLOY	Severe impact; abrasion	Crusher & dredge parts, tamper feet, bucket teeth. A tough low-cost hardfacing.	Gas AC-DC Arc
VICTORALLOY #1	High abrasion; medium impact	Crushers, bucket lips & teeth, muller tires, dozer blades, dredge pumps	Gas AC-DC Arc
VICTORALLOY "A"	Angular shock; extreme impact	Clutch parts, gears, latches, pins & keepers; build-up for hardfacing	AC-DC Arc only
VICTORALLOY "B"	Heavy impact; moderate abrasion	Tractor idlers, sprockets, rolls, crusher parts, pump casings, impellers, liners	AC-DC Arc only
VICTORALLOY "C"	High abrasion; moderate impact	Cement screws, gudgeons, drag chains, pressure rolls, mixer blades & paddles	AC-DC Arc only
VICTOR MULTI-PASS (for Build-Up)	Severe impact; compression	Drill tools, crawler pads, crushers, mine rails; build-up for hardfacing	AC-DC Arc only
VICTOR Ni-Mn (for Build-Up)	Severe impact; compression	Hardmetal underbase for manganese steel parts on crushers, dredges, dippers	AC-DC Arc only
VICTOR Ni-Mn (for Attachment)	Severe impact	A low-cost "stainless" joining rod for crushers, dippers, crawlers, dredges	AC-DC Arc only

WIRES FOR AUTOMATIC & SEMI-AUTOMATIC APPLICATION

This Wire	For These Conditions	This equipment or use
VA O	Severe abrasion; moderate impact	Crushers of all types, tool joints, mullers
VA 1X	Abrasion & compression with impact	Scrapers, bucket teeth, crushers
VA 2X	Severe compression & impact with abrasion	Steel mill rolls, dredge rolls, cable sheaves
VA 3	Severe abrasion & compression with impact	Mill guides, crushers, grinders
VA 4X	Severe impact & compression	Build-up on trunnions, tractor idlers & tracks
VA 5X	Severe metal-to-metal impact & abrasion	Shovel rollers, tractor rollers & idlers
VA 6X	Severe impact, high temp., dry bearing	Steel mill rolls, clutches, roll necks
VA 7X	Severe impact & compression with abrasion	Build-up on mine car wheels & tractor rollers
VA 8X	Earthworking abrasion & impact	Dozer blades, scraper blades, tool joints
VA 10	Extremely severe abrasion; moderate impact	Tool joints, crushers, scrapers, swing hammers
VT 60 (Tungsten Carbide)	Maximum abrasion; earth cutting, scraping	Tool joints, scraper blades, augers
Ni-Mn (Hadfield)	Wear, all types manganese steels	Build-up manganese steel parts for overlay or to size

blasting caps, millisecond delays being used. This broke up the silica and hard gray sandstone so that it could be easily handled by the shovel loading the haul units.

Replogle used a Lima 1601 shovel with a 5-yard bucket to load the seven LeTourneau-Westinghouse Tournarockers with the rock and earth. Each Tournarocker handled a payload of 18 to 19 cubic yards of rock; 27 yards of earth, when heaped; and 23 cubic yards of earth, struck.

Rock used as fill

Blasted rock was hauled to fill areas and placed in maximum 3-foot lifts. The disintegrated sandstone, which was like a fine sand, was placed in maximum 8-inch lifts by the Cat DW21 scrapers. A Buffalo-Springfield Kompactor compacted the 8-inch lifts. The contractor had four D9's, eight D8's, and one D6 tractor-dozer to spread the rock and earth fills, as well as to work with the Lima 2½-yard dragline that relocated about a mile of an existing creek.

Most of the earth cuts were excavated by a team of scrapers push-loaded by some of the tractors. These included both the self-propelled rubber-tire units as well as the tractor-drawn models used for short and steep hauls. There were five Caterpillar DW21 scrapers, three Cat 90 scrapers pulled by D8 tractors, and a Cat 80 scraper pulled by a D8. These pull-scrapers worked very well on some steep grades that had to be cut down adjacent to the existing highway. The project did not require any borrow, even though some fills were 50 feet high. These fills were shaped by a Cat motor grader. Other major equipment on the job included two Ingersoll-Rand wagon drills; a Gardner-Denver 600 air compressor; a Worthington 125 compressor; and a Le Roi Tractair.

Keeping an equipment spread such as this in topnotch condition was a continual process. A grease truck, equipped with Alemite dispensing reels, was constantly on the move along the entire job to catch equipment needing lubrication. A fuel truck operated in a similar way. Gulf fuel and lubricants were used on the job. The contractor retained General Tire Services, Akron, Ohio, to perform all the tire repairs and changing on rubber-tire equipment.

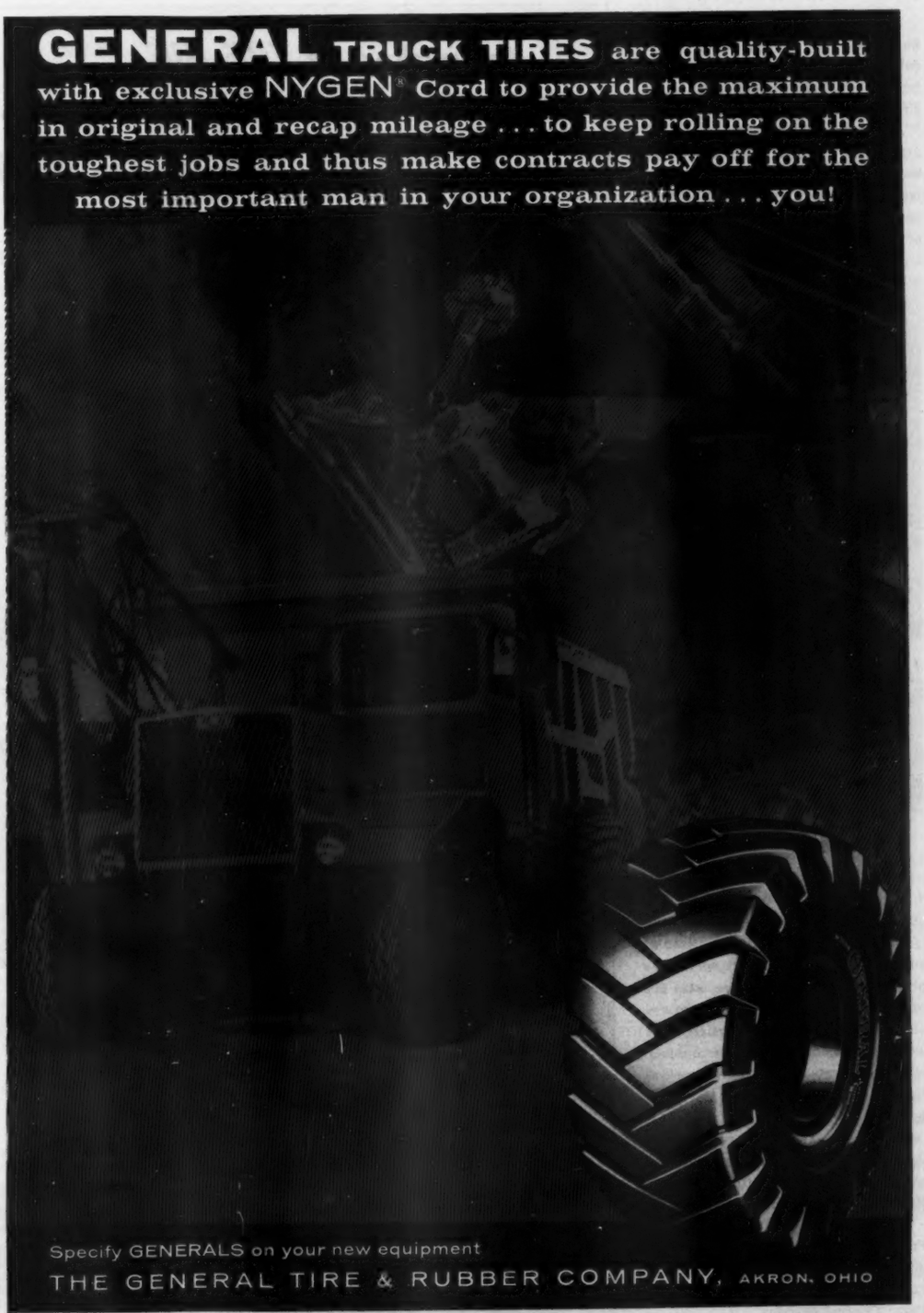
Minor repair parts, also stocked on the job, included such items as pressure plates and clutch disks for the tractors. Major overhauls were sent to the company's headquarters in Circleville, but all generator repairs were handled in Jackson. A Motorola base station and mobile radios linked the field to the job office and the home office.

Personnel

John Bizzack is the general superintendent and William King, the job superintendent for C. F. Replogle. James Gray is the resident engineer for the Ohio Department of Highways. THE END

Rock is dumped on the roadway by a Tournarocker, and a Cat D8 tractor-dozer waits to spread the material in maximum 3-foot lifts. Rock was found along the southern 2 miles of the 6½-mile contract, and the Tournarockers did well on the long hauls.

A Cat D8 and an 80 pull-scraper come down a steep grade that will have to be removed since the new alignment crosses the existing highway, left. Altogether, the reconstruction job calls for removal of 500,000 yards of earth and 700,000 of rock.


GENERAL TRUCK TIRES are quality-built with exclusive NYGEN® Cord to provide the maximum in original and recap mileage . . . to keep rolling on the toughest jobs and thus make contracts pay off for the most important man in your organization . . . you!
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THE GENERAL TIRE & RUBBER COMPANY, AKRON, OHIO

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Tricks of the trade

Old drawings take on new life with help from film process

Keeping drawings in a like-new condition is not impossible—even though they have to take repeated handling. Anyone plagued by this problem can take a cue from the Bureau of Yards and Docks, which recently restored a set of drawings of the U. S. Naval Academy's Dahlgren Hall.

Historic drawings of the structure—and of others at the academy—were worn with age and handling. Every time work had to be done on the building, it was necessary to survey the old structure and draw plans to indicate original construction.

The set of 31 drawings was reproduced on film, which will be stored so that 100 years from now, if necessary, it can be used for filmed reproductions as clear as today's prints.

The 105-mm Micromaster filming system, which BuDocks recently adopted, was used to bring the drawings back to legible form. Under this process—a development of the Keuffel & Esser Co., Hoboken, N. J.—detailed drawings were consulted and missing portions of torn drawings redrawn on filmed copies. This completed the pictures originally executed. These were then photographed again for reduction to 105-mm size.

The total cost of the drawings for the Naval Academy was slightly less than $100 apiece, many times below the estimated cost of redrawing them for each renovation job.

Canvas tube delivers lagging material to shore deep trench

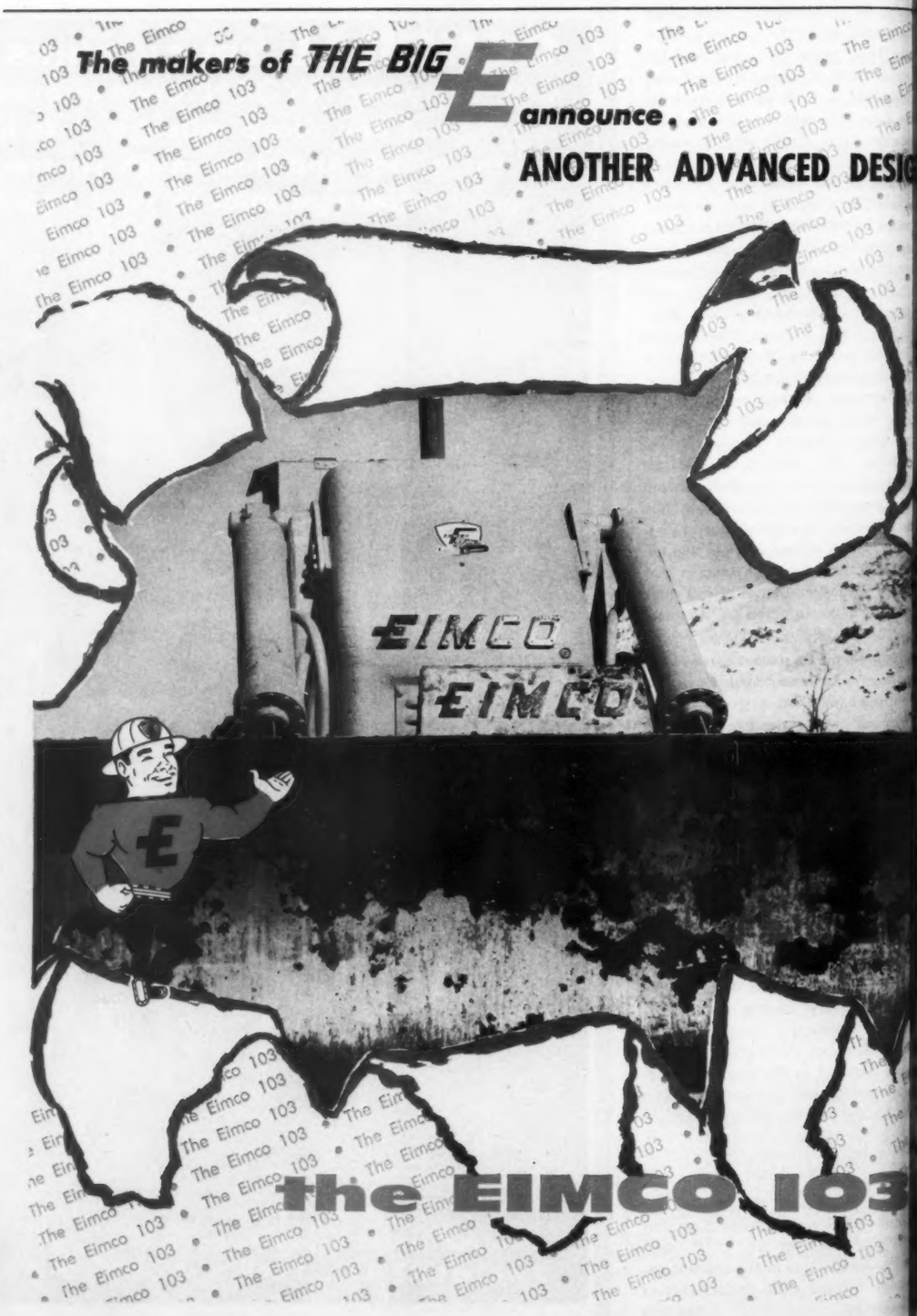
Hanging from what looks like a basketball ring, a long white canvas tube delivers lagging material to the bottom of a deep trench excavation simply, quickly, and safely.

A workman at the top inserts an armful of the precut 2 × 12 lagging boards through the ring into the open top of the tube and simply lets them drop. They fall straight to the bottom of the trench where they can be

picked up as needed. No hoisting equipment is required, yet there is no danger of loose boards flying around out of control.

The steel ring that holds the tube and keeps it open attaches very simply to the top of one of the steel H-piles spaced at 3 to 6-foot centers along both sides of the trench. One workman can move the tube quickly and easily from pile to pile along the trench to points where material is needed.

The canvas tube for lowering the lagging into the deep trench was used by the joint venture of Peter Kiewit Sons' Co., Omaha, Nebr., and Fred J. Early, Jr., Co., Inc., San Francisco, on a $8.5 million storm drain project that is part of the $179 million program of the Los Angeles Flood Control District.



Stairways built for job safety

Metal plaster lath, nailed to the steps of a temporary stairway, save construction workers from many a fall. In wet and muddy weather, the sharp-edged metal screens provide a sure grip for slippery boots. The handrails also give the workmen added protection.

In the construction of the vehicular tunnel under the Intracoastal Canal at Houma, La., the level walkways over the water serving the pile-driving operation, and the stairways, were surfaced with the metal lath.

On this job, there was an exceptional amount of wet weather. The clay, clinging to the men's boots, would have made chutes out of the stairways had it not been for the metal lath. Baltimore Contractors, Inc., Baltimore, Md., the general contractor, made their job safer by this simple and inexpensive device.

Contractor's device speeds shore maintenance

Cleaning and oiling adjustable steel shores moves along swiftly with the help of this contractor-built device.

A vise, mounted on the steel frame, holds the shore in position as two men perform the maintenance operation. The man with the hard hat pulls out the telescoping section and paints the inside section with oil. The oil is conveniently located in the trough that forms the horizontal member of the frame.

The adjustable end of the shore is easily unscrewed by means of the wheel mounted on the frame. After the workman spins out the screw connection, he greases the exposed threads.

The rig is built by Southwest Steel Products, Houston, Texas, to handle the maintenance of their own shores. This particular maintenance operation is being done during the construction of the Royal Orleans Hotel in New Orleans. Southwest Steel Products subcontracted the furnishing and erection of the steel pans for the forming of the floors. The general contractor is J. A. Jones Construction Co., Charlotte, N. C.

New technique for concrete columns saves builder cash

A way to save money on concrete column work for a building is being pioneered by G. W. Atkinson & Son, Inc., Columbus, Ohio. The contractor is working on the Riverside Methodist Hospital in the city, and the job requires the forming of about 180 reinforced-concrete columns.

Concrete placement for these columns is being handled by a Special No. 34 Lad-E-Vator made by Campbell Equipment Co., Des Plaines, Ill. The rig has a 4½-cubic-foot dumping scoop, top section 15 feet under curve, automatic stop, and standard carriage. The portable frame, support, and receiving hopper being used on this project were made by the contractor.

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G. A. Gilbertson, president of The Frank G. Hough Co., is the current president of CIMA.

A section of the 1957 Road Show, which displayed more than $12 million worth of road-building machinery and equipment manufactured by CIMA members.

by WILLIAM T. DARDEN, feature editor

CIMA—A decade of service

Ralph K. Stiles
1949-50

Julien R. Steelman
1951-52

Two years ago last January, the largest indoor industrial exposition ever held was staged in Chicago's International Amphitheatre. During the 6-day show, more than 67,000 persons vitally concerned with America's great road-building industry visited the Amphitheatre and viewed some $12 million worth of modern heavy-construction machinery and materials.

The official sponsor of this gigantic Road Show was the American Road Builders' Association, long recognized as the spokesman for this country's road-building industry. Working quietly behind the scenes, however, was another, more specialized organization through whose direct efforts the Road Show was planned, financed, and staged.

This lesser known but highly important organization is the Construction Industry Manufacturers Association—popularly known as CIMA. Closely affiliated with ARBA, yet with a scope of activities peculiarly its own, CIMA is the official international spokesman for manufacturers of construction equipment and an organization dedicated to serving the best interests of its members and the construction industry as a whole.

This month, CIMA looks back on 10 years of fruitful activity, with the 1957 Road Show only one dramatic example. Perhaps even more important are the countless unheralded services the association has performed for the nation, the entire road-building industry, and its own manufacturer members. For CIMA is primarily a service organization.

Behind the scenes

Like all service organizations, CIMA fills particular needs, often without creating an impact on the public as a whole. Even within the road-building industry, its specialized activity is often in the background serving contractors, engineers, and government agencies without public recognition.

Take the Road Show, for example. By gathering together under one roof virtually all the latest models of road-building machinery and samples of the most up-to-date materials for this industry, CIMA provided a shopping center for contractors and others who use this equipment, at the same time giving its manufacturer members a showcase for their products.

CIMA members spent some $1[illegible] million to ship equipment to Chicago from all over the country and mount the attractive show that drew road-builders and other interested persons from all over the world. All of the planning, allocating of space, dealing with countless unions and concessionaires, and smooth running of the

(*Continued on page* [illegible])

Harald T. Reishus
1953

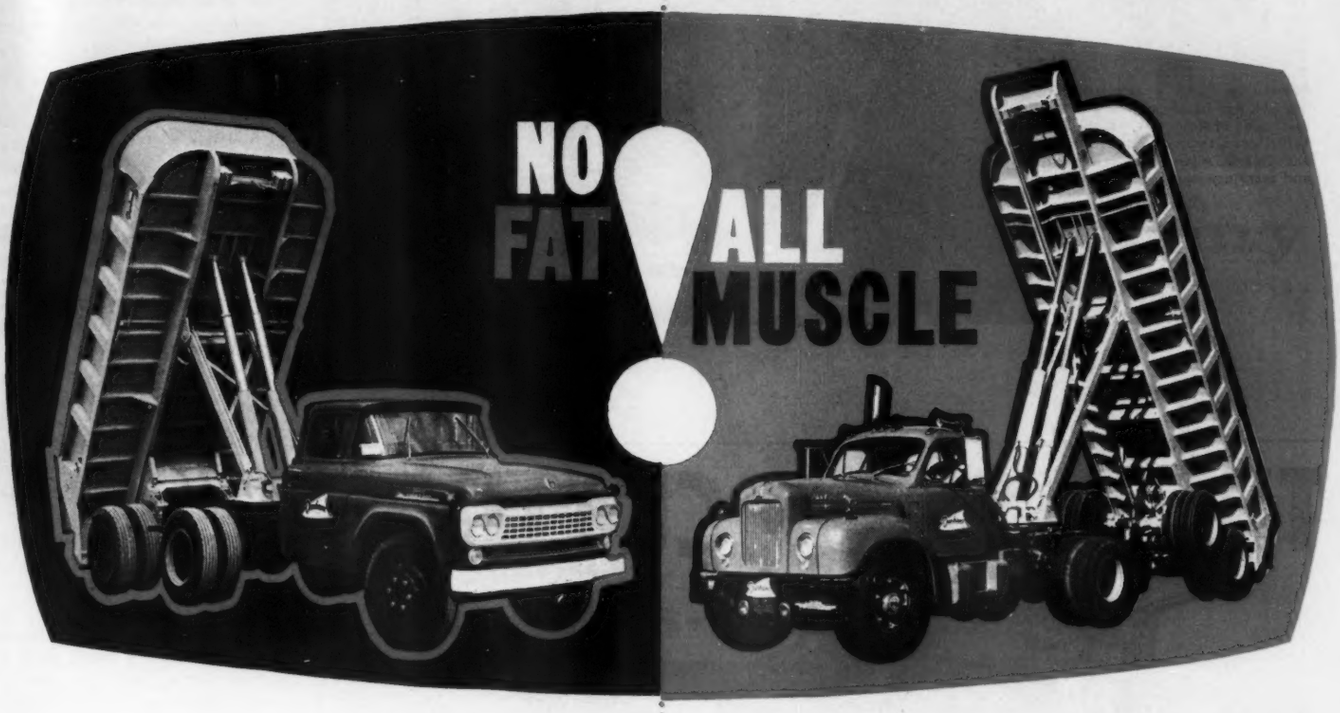
Frederick Salditt
1954

Kenneth Lindsay
1955-56

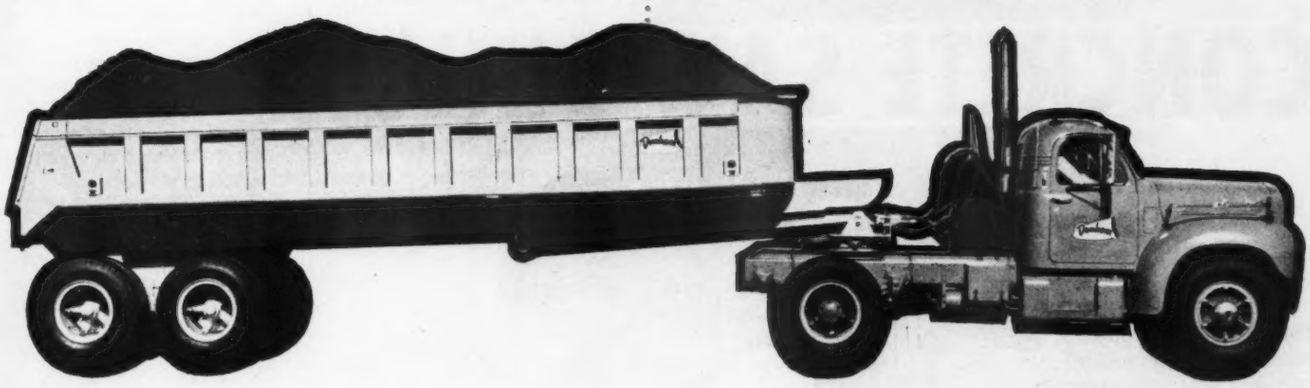
Clarence E. Killebrew
1957

Boyd S. Oberlink
1958

DUNHAM TRAILERS

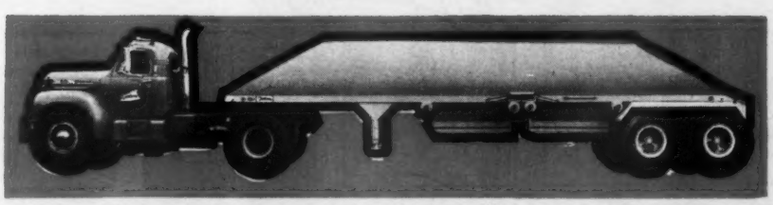


lift and tote without a grunt!



PACKED WITH ADVANCED ENGINEERING IDEAS, DUNHAM trailers move legal payloads on the toughest hauls . . . *profitably* . . . and load and dump where you ask them to. There's no better way to cut hauling costs than with a DUNHAM. So, give us a try, won't you, and *"Let a* DUNHAM *carry your load."*

Ask about our Finance Plan



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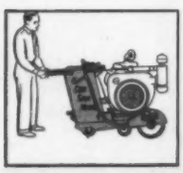
Day-to-day CIMA operations at the Chicago headquarters are in the hands of Robert P. McKenrick (left), executive vice president, and Carl G. Allen, vice president and secretary.

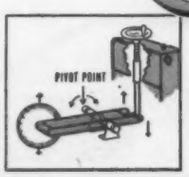
THE FASTEST CUTTING CONCRETE SAW BUILT!

The rugged Clipper 36 H.P. Model C-363, best ever built for production performance on highways, airfields — heavy trenching jobs. One of many Clipper saws for every job — every budget!

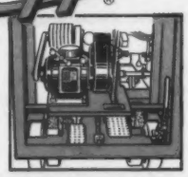
AND HERE'S HOW Clipper BUILDS THEM...



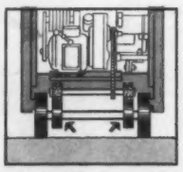
Our engineering staff really outdid themselves with Dual Balance Design—which simply means that this Big Saw is so perfectly balanced that one man can easily handle it. The engine weight is over the blade, preventing blade "ride-out". It's easier to use than any other saw—another reason why 4 out of 5 Buy Clipper!



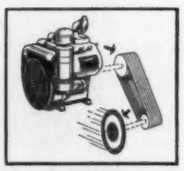
Only the most accurate blade feed was good enough for us, so we originated Ball Bearing Positive Screw Feed... which gives you positive control of the blade at all times ... and enables you to keep abrasive blades at the proper cutting depth as they diminish in diameter. No other method... not even hydraulic ... gives such complete blade protection.



We bring you the most powerful Heavy Duty Transmission ever used on a concrete saw. To it we've added abrasive coated drive wheels (ours only) which transmit smooth continuous power and propels this rugged saw through the toughest jobs at speeds up to 26 feet per minute. Another reason why it's the fastest saw ever built!



Solved! The problem of curing compound buildup on the drive wheels. We added two Separate Contact Wheels which never touch the pavement and operate right off the transmission drive wheels. Result? Continuous operation without downtime for wheel clean-up. A good example of our experienced know-how, which means more practical, efficient equipment for you.



Selection of component parts gets the same intelligent thought given the design of Clipper Saws. That's why we chose the dependable proven 36 H.P. Wisconsin Engine, then added 6 reinforced V-Belts to give 100% sure power delivery. That's why we can guarantee that no other saw can match Clipper!

ONLY CLIPPER CONCRETE SAWS ARE... Unconditionally Guaranteed TO CUT FASTER—
4341 **HANDLE EASIER and GIVE MORE FOOTAGE PER BLADE THAN ANY OTHER SAW!**

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For more facts, use Request Card at page 18 and circle No. 271

(*Continued from page 30*)

show was handled by CIMA membe and headquarters personnel.

And lest this talk of the 1957 sho seem to be emphasis on past accom plishments, let it be said right he that CIMA is planning a bigger an better Road Show for 1963. The dat tentatively, is the week of Februar 24, and the place will again be the In ternational Amphitheatre in Chicag

Already, plans are being formu lated for the 1963 show, for it take about three years to build a succes ful Road Show. Many manufacturer have indicated that at that time the will have new, improved models an much new equipment to show to th road-building industry.

Road Shows are by no means th most important activity of CIMA however, though perhaps the be publicized. Consistently more impor tant and of immeasurable value t the road-building industry and th nation as a whole is CIMA's suppor of and participation in the activitie of the American Road Builders' As sociation.

Manufacturers of construction ma chinery have been closely allied wit ARBA for a long time—practically since the beginning of that organiza tion. For many years the Manufac turers Division of ARBA function solely as an integral part of the road builders' group and supported the ac tivities of the ARBA. In 1949, th manufacturers decided to enlarg their scope of activity so as to be abl to cooperate with other allied groups Thus CIMA—an entirely independen organization of manufacturers—grew out of the Manufacturers Division.

Retains ARBA tie

There was, however, no change i their ARBA affiliation. CIMA is a one and the same time an autono mous organization and the Manufac turers Division of ARBA. Thus it stil supports to the same degree the work of the larger organization, while it is also cooperating with and supporting other organizations.

Specifically, its independent statu enables CIMA to join in the activi of the International Road Federation and to work closely with such othe industry organizations as the Associ ated General Contractors, Associate Equipment Distributors (many mem bers of CIMA are also associat manufacturer members of these tw groups), American Association o State Highway Officials, and variou vertical manufacturer organization such as the Truck Mixer Manufac turers Association, the Power Crane and Shovel Association, and th Pump Mixer Manufacturers Bureau

Besides cooperating in the work o ARBA, CIMA plays an especially im portant role in contributing the ma jor share of financial support to thi organization. It also provides sub stantial financial support for the In ternational Road Federation.

Obviously, manufacturers of con struction machinery have a consider able stake in the highway and road building and maintenance picture

(*Continued on page 34*)

Grading a road in Florida

Maintaining a haul road in Illinois

Rough grading a turnpike in Texas

Top GRADE MEN all over the country

Leveling a haul road in Indiana

Finishing a cut in Nebraska

choose Allis-Chalmers

Maintaining haul roads in Minnesota

Spreading fill in Alabama

Trimming up a haul road in Mississippi

FORTY FIVE motor graders

Maintaining logging road in Washington

Removing rough spots on a haul road in Colorado

Fine-grading base material in Oregon

When selecting motor graders for your next job, consider this swing to the FORTY FIVE . . . then check this *combination* of features available only in Allis-Chalmers motor graders:

- ROLL-AWAY moldboard, an Allis-Chalmers exclusive, reduces friction by moving the load up and ahead of the board . . . handles more material per horsepower than any other make.
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- Extra high throat clearance accommodates big rolling loads without jamming material against the circle.
- Toggle-type controls, another Allis-Chalmers exclusive, give operators positive control . . . eliminate wrist-snapping backlash.

Your Allis-Chalmers dealer will arrange for you to try these and the many other features that make the Allis-Chalmers FORTY FIVE your best BIG grader buy. Tell him to set the date. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

ROLL-AWAY is an Allis-Chalmers trademark.

move ahead with ALLIS-CHALMERS

. . . power for a growing world

For more facts, use Request Card at page 18 and circle No. 272

(Continued from page 32)

both here and abroad. It seems entirely fitting, then, that they support efforts on the part of both ARBA and IRF to assure an orderly financed and continuing long-range program of highway construction and improvement at home and in other countries. In this support, CIMA directly serves the interest of the nation and the world—for highways are the life-carrying arteries of a nation and an essential part of its economic well-being.

For its own manufacturer members, CIMA carries on a continual program of invaluable services. Frst of all, of course, the organization fosters and finances extensive promotional programs and activities that develop new and improved markets for members' products and services.

Sponsors bureaus, councils

One of the most important services CIMA renders to its members is to provide the sponsorship and guidance under which manufacturers may form bureaus or councils, on a product or functional basis, to discuss mutual problems and work for improvement of any phase of their business operation.

Bureaus are made up of manufacturers of like products. So far, two have been formed within the ranks of CIMA: a Continuous-Trenching Equipment Bureau and a Bituminous Distributor Manufacturers Bureau. The members of these bureaus meet twice a year to discuss problems common to their phase of the industry. Other bureaus are in the formative stage.

Councils have a much wider scope and membership, being composed of manufacturers of any kind of equipment who band together to discuss business or operational problems they have in common. Two such are presently active: the Parts Council, with 146 members, and the Service Council, with 101 members.

Meetings of these councils have been highly successful, drawing manufacturers or their representatives from all over the country to Chicago for a full day of papers, panels, and discussions.

In a special way, CIMA has made substantial contributions to the nation's welfare and security. In addition to cooperating with and maintaining practical relations with government agencies associated with the construction industry, the organization has provided several valuable services on particular occasions.

Several years ago, the manufacturer organization sponsored the establishment of continuing reports from manufacturers to the federal government on the consumption of all raw materials, thus establishing the basis for allocations that would assure maintenance of the required level of industry production in the event of war.

CIMA also originally prepared and periodically revises the Construction Machinery and Equipment section of the ARBA Task Force Report, which evaluated the ability of the construction industry to accomplish the federal highway program. This report was most useful in supplying factual data to Congress during its discussion of the multibillion-dollar highway appropriation.

Represents the industry

CIMA's membership consists of most of the major manufacturers of construction equipment, equipment components, and raw materials used in equipment manufacture—240 firms in all, but a more meaningful figure is contained in the fact that CIMA members account for approximately 95 per cent of the dollar volume of equipment sold in the U. S. each year.

The roster of past presidents and the current officers and directors of CIMA reads like a list of the key men in construction-equipment manufacturing. Ralph K. Stiles, formerly president of Austin-Western Co. and now retired, was the first president serving in both 1949 and 1950.

Succeeding presidents have included: Julien Steelman, president of the Koehring Co., past president of ARBA, and currently chairman of the board of IRF, 1951 and 1952; Harold Reishus, vice president of International Harvester Co., 1953; Frederick Salditt, vice president of Harnischfeger Corp., 1954; Kenneth Lindsay, executive vice president of Iowa Mfg. Co., 1955 and 1956; Clarence E. Killebrew, vice president and general manager of Clark Equipment Co.'s Construction Machinery Division, 1957; Boyd S. Oberlink, group vice president of Allis-Chalmers Mfg. Co., 1958.

Present officers are G. A. Gilbertson, president of The Frank G. Hough Co., president; Donald V. Buttenheim, president of Buttenheim Publishing Corp., first vice president; W. C. Messinger, vice president of the Construction Machinery Section of Chain Belt Co., second vice president; and Ray McLean, president of the Jaeger Machine Co., treasurer.

Directors include C. R. Boll, Cummins Engine Co., Inc.; James A. Drain, Joy Mfg. Co.; D. W. Lehr, Link-Belt Speeder Corp.; Carl F. Rolf, Pioneer Engineering; Merl R. Yontz, LeTourneau-Westinghouse Co.; W. K. Cox, Caterpillar Tract-

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ROLLER CHAIN

delivers dependable power . . . keeps equipment on the job

LULL, UNIVERSAL and ROSCO, like many other leading construction equipment builders, specify DIAMOND Roller Chain for power transmission . . . because DIAMOND meets the rugged requirements of highway and building construction.

DIAMOND's proven ability to deliver smooth, dependable power despite the shocks and abuse of continuous service, assures long, trouble-free performance . . . easy, economic maintenance.

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Over the years, Cyanamid Electric Blasting Caps have achieved this enviable record for never-miss shooting. Millions of mine . . . quarry . . . and construction shots have been fired accurately, dependably and economically by using Cyanamid — the *best* in electric blasting caps! Cyanamid makes a cap for every blasting need. Instantaneous, regular or split-second delays . . .

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Make every shot count! Insist on Cyanamid Blasting Caps and Explosives!

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mount one on your truck . . . and load, haul, lay and string pipe with a single unit

With a Pitman Hydra-Lift on your truck, you can load pipe in the yard, haul it to the job at normal truck speed, unload it on the job, then lay it . . . all with a single economical unit. Hydraulic power swings Hydra-Lift's boom 180°, telescopes it from 17′ to 27′ . . . all you do to operate the boom is move a simple, hand lever. Here is the absolute maximum in time, labor and equipment-saving efficiency. Why not get all the facts today . . . all you have to do is fill and mail the coupon below.

***Model 60-HB shown. Pitman also manufactures . . .**

Hydra-Lift Model 50

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Hydra-Lift Model 60-HB on a Pitman Carrier

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Only Hydra-Lift Does So Many Jobs, So Well—Handling pipe or pole, placing steel or concrete . . . on these and dozens of other jobs you'll find Hydra-Lift is unrivalled when your loads fall within Hydra-Lift's capacity range.

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PITMAN MANUFACTURING COMPANY, Grandview, Missouri

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Co.; Edward H. Holt, Barber-Greene Co.; Mr. Lindsay; Mr. Salditt; A. G. Crockett, Mack Trucks, Inc.; R. L. LeTourneau, R. G. LeTourneau, Inc.; A. J. Lichtinger, Wellman Engineering Co.; J. A. Miller, Rosco Mfg. Co.; J. E. Mitchell, Firestone Tire & Rubber Co.; W. A. Nugent, Thor Power Tool Co.; Buel M. Wallis, Schield Bantam Co.

Executive staff

While these men, representing the best brains in the construction equipment manufacturing field, are the guiding nucleus of the organization, the day-to-day operations are in the capable hands of two executive officers: Robert P. McKenrick, executive vice president, and Carl G. Allen, vice president and secretary.

McKenrick, who began his career as a construction engineer, came to CIMA in 1956 from the Blaw-Knox Co., where he was vice president and general manager of the Construction Equipment Division. Allen, who also joined the CIMA staff in 1956, formerly was secretary of the National Construction Machinery Credit Group.

No recounting of CIMA's 10 years of progress would be complete without mention of the late Harold Hess, who was the organization's first executive officer. Hess served the association until his death in 1956, when he was in the midst of planning the 1957 Road Show.

As to the future, the continuing efforts of these dedicated officers and directors, as well as of a loyal membership, assure even greater benefits to the members, the road-building industry, and the American public as a whole. For as these business men are prosperous, America will be getting the highways it badly needs, and the nation's economy will be the sounder. THE END

A HEAPING LOAD of rock and shale is moved by a Michigan Model 380 tractor-dozer push-loading a Caterpillar DW21 on the relocation of Route 66 north of Greensburg, Pa. The giant 375-hp dozer heaps a 15-cubic-yard payload in less than a minute. Latrobe Road Construction Co., Latrobe, Pa., is the contractor on this section of the project.

Unspliced-hose process developed by Goodyear

A continuous-production process has been developed by the Goodyear Tire & Rubber Co., Akron, Ohio, to build large-diameter unspliced hose in lengths limited only by the size of transportation facilities. A non-stop production system turns out the hose with no splice weak spots. The hose liner is wrapped and sealed on a mandrel, wrapped with reinforcing cord, and bagged and cured in a continuous cycle.

The building process resembles that used in making automobile tires. The process can be adjusted to produce 2 to 8-inch-ID hose. Goodyear's first production with the new process was devoted to military projects. A 4-inch hose was produced in 500-foot lengths to transport military fuels.

Some of the first commercial uses are expected to be for offshore unloading of tankers, offshore drilling production, industrial waste disposal, and temporary pipe lines. The hose can be manufactured to float or sink for marine use, and reportedly can handle all known chemicals and fuels.

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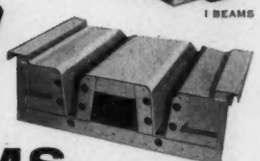
I BEAMS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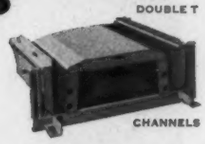
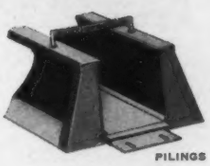

CHANNELS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NEW! FROM FORM-CRETE!
Single T Slab Form

The latest in design, this new Single T permits castings with slabs six or eight-feet in width. Special design feature permits form to be swung back slightly, allowing easy removal of product. Write for more information.

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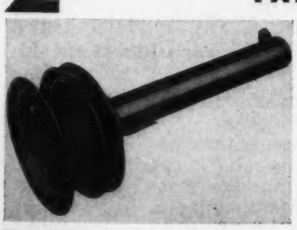
FOR EFFICIENCY AND ECONOMY . . . 2 WAYS TO MAKE CRANE OPERATIONS PAY MORE



1 RUD-o-MATIC
Combination Magnet Reel-Tagline

Rud-o-Matic Combination Magnet Reel-Tagline saves expensive electric cable wear on overhead and boom crane jobs. Tension on the steel tagline cable keeps the strain from the expensive electric magnet cable. Now standard equipment with major crane manufacturers, the Rud-o-Matic Combination Magnet Reel-Tagline is made in five models to fit your present equipment. Insure complete tagline control on *your* crane with Rud-o-Matic!

2 RUD-o-MATIC
Tagline

Crane operations are more profitable when you install Rud-o-Matic Taglines. Heavy duty torsion coil spring keeps tension on tagline cable at all times for bucket control. Buckets are held steady at any angle of the boom. Available in 11 models for various bucket sizes and pull out requirements. Taglines delivered fully equipped with fairlead and cable attached—ready to install. Get more pay loads per day with *your* crane with Rud-o-Matic Tagline Control!

FOR FULL INFORMATION ON RUD-O-MATIC TAGLINES, CALL OR WRITE
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2131 EAST 25 STREET, LOS ANGELES 58, CALIFORNIA

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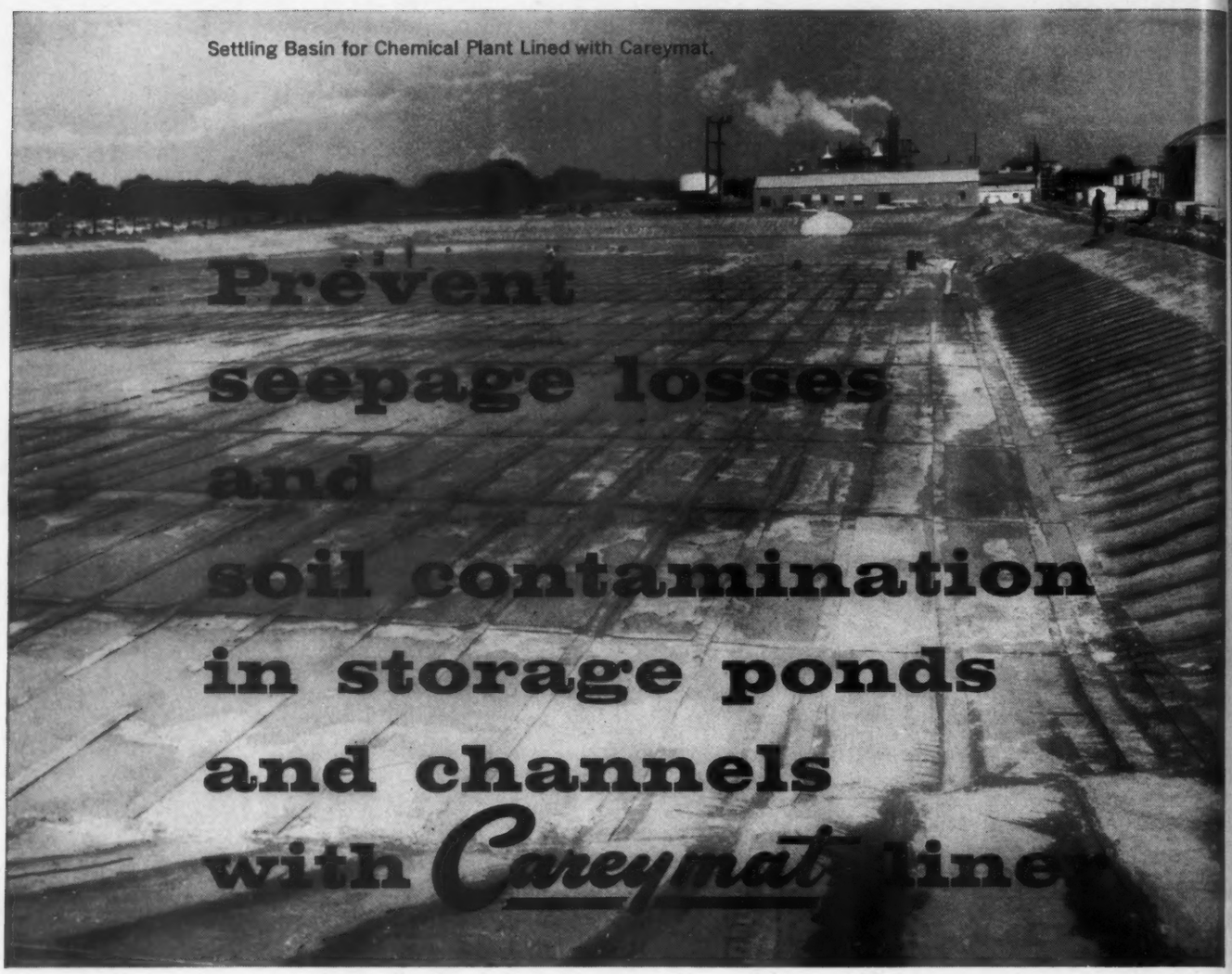

As the industrial water problem becomes increasingly important the need for holding basins and channels grows. In the economic evaluation of storage pond and trench construction Careymat Liner must be considered because of the simplicity of application and of pre-preparation.

Careymat Liner is not only a tough, pliable board; it is the principal material in a method of construction for simple reservoirs and drainage canals which embraces the essential cements and asphalt compounds, all manufactured by Carey.

Careymat itself is a prefabricated panel with a homogenous core of asphalt, plasticizers and inert fillers, bonded by heat and pressure between two coated sheets of tough felt. It will withstand animal and light vehicular traffic; its weathering characteristics are superior, even in the freezing and thawing extremes.

The expense of installing Careymat Liner will *average about one-third the price* of monolithic linings because of reduced construction time, and savings in materials costs and handling. These economies apply regardless of the type of installation—

- irrigation canals
- pollution control
- aerating basins
- agricultural ponds
- storage reservoirs
- erosion prevention
- industrial spillways
- conservation dams

The demand for Careymat Liner is growing steadily as contractors experience the effectiveness of this method of construction. If you contract for basins or channels involving earth-moving you should know more about Careymat and the related Carey materials for use in lining operations.

Write for Bulletin 6341C (illustrated); if you have an immediate project which requires lining of earthworks the Carey District Office nearest you can help. These offices are located at:

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Bellwood (Chicago), Illinois
Cambridge (Boston), Massachusetts
Cincinnati, Ohio
Cleveland, Ohio
Dallas, Texas
Des Moines, Iowa
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Houston, Texas
Indianapolis, Indiana
Los Angeles, California
Memphis, Tennessee
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positive, trouble-free joint-sealers

for highways, airports, heliports, parking decks

Careylastic® sealing compounds

SPECIFICATIONS
Standard: Fed. Spec. SS-S-164 (1) & State Highway Dept. Specs.
Cold Seal: Fed. Spec. SS-S-158a & State Highway Dept. Spec.
Jet: Fed. Spec. SS-S-167a SS-S-167b

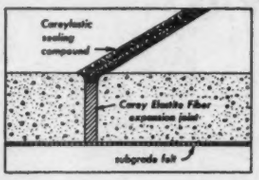
Careylastic Sealing Compounds have a long-established reputation for effectiveness in highway and airport joint-sealing. More than a half-century of research, development, and practical experience with expansion joints and related heavy construction materials back up the *warranty* under which Careylastic Sealing Compounds are manufactured and distributed.

STANDARD CAREYLASTIC is made for hot-pouring application. Because it is a semi-solid material it must be heated in an indirect-heated kettle and applied under pressure.

CAREYLASTIC COLD SEAL is compounded for direct application as it comes from the drum, utilizing air-operated pumping equipment with flow compensator for even distribution.

JET CAREYLASTIC is especially prepared for airports where jet fuel may come in contact with the paving. JET is impervious to jet fuel which makes it particularly desirable for maintenance of airports receiving or preparing for jet traffic. This is a hot-pour sealer which bonds and seals effectively immediately.

Both Standard and Cold-Seal are compounded of rubber, asphalt, and plasticizers. JET is a mixture of rubber and tar, with stabilizers and plasticizers. All compounds are formulated under laboratory test control so that they will retain plastic and elastic qualities at both summer and winter temperatures. Thus Careylastic Sealing Compounds fulfill every requirement . . .

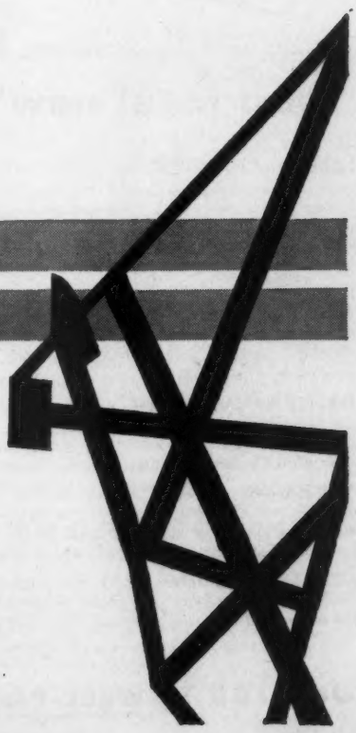


- bonding completely to the side of the joints.
- providing positive, water-repellent seals
- contracting and expanding as paving contracts and expands
- sealing that is permanent and practically maintenance-free

Paving cross-section showing how Careylastic Sealing Compound is applied over expansion joint

You may be interested in the bulletin which describes the full line of Carey Elastite Products. We would like to send you Bulletin 6357—just write H&P Products Division, The Philip Carey Mfg. Company, Lockland, Cincinnati 15, Ohio.

Carey® District Offices in Principal Cities



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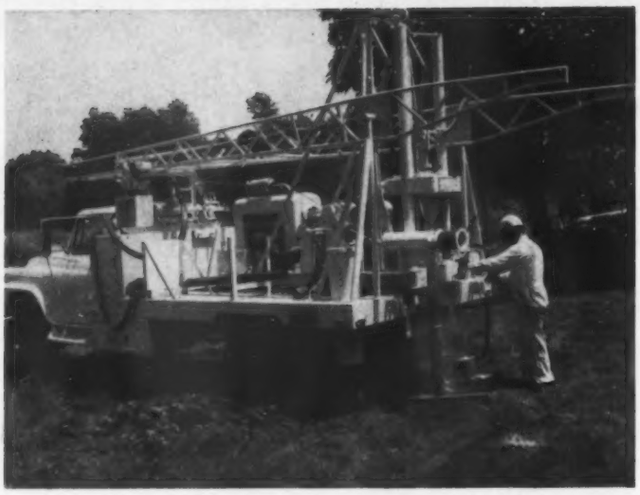

Mobile drills finish first at Indianapolis race

"Gentlemen, start your engines." These words signaled the start of the classic 500-mile race in Indianapolis on Memorial Day. The same words, spoken on the day before the race, signaled the beginning of a new product demonstration that was equally interesting.

The B-52 Pacemaker, mounted on an International 1½-ton truck, utilizes the pneumatic drill attachment for drilling through rock. An air hose runs to a separate compressor for the work.

Mobile Drilling, Inc., Indianapolis, warmed up the engines of four late-model drill rigs and put them through their paces. There were no crack-ups, no mechanical failures and all the high-speed machines finished in the money.

The fans cheered the performance of the B-52 Pacemaker. This versatile truck-mounted drill pulled out soil samples, drilled through rock, and augered out large-diameter holes. In extracting the soil samples, no water was necessary because of Mobile's special hollow-stem auger. At the desired depth, a sampling tube was driven through the hollow core to pick up the material at the base of the hole.

A new feature is incorporated in the rig to make pulling the drill from the hole much faster. By means of a lock pin, the power head is used to unscrew the drill sections. Drilling through rock is easily done with the help of a special attachment and an outside compressor. For borrow pit sampling, the rig can be equipped with a 20-foot kelly and bucket auger. At intervals, the material is lifted from the hole and spun off.

Also included in the afternoon demonstration was the introduction of Mobile's new fully hydraulic horizontal boring machine. Called Sidewinder Model B-60, this unit was designed and built to solve the problem of slide control in various parts of

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PURCHASING AGENT: "Due to modern production methods, we get Ford engines at low initial cost. And when increased sales suddenly boost production, Ford provides speedy delivery service to fill our orders."

COMPANY PRESIDENT: "Since our products are no better than the engines that power them, we insist on the best—Ford Industrial Engines. Built and backed by one of the world's most successful manufacturers, they protect our reputation and customers' investments."

FORD SALES ENGINEER: "Ford Industrial Engines range from 134 to 534 cubic inches. *All* are available as engine assemblies or power units. We will be happy to recommend the right engine for your application — or help you solve any other power problem you have. For complete information, write Ford Industrial Engine Department, Ford Division, Ford Motor Company, P. O. 598, Dearborn, Michigan."

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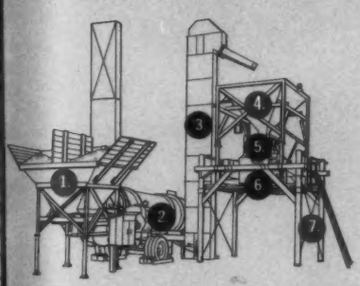
CONTROL YOUR MIX FROM PUGMILL TO PAVEMENT

You receive ALL the profits!



1. 5-ton, 2-compartment dual feeder bin
2. 30-ton dryer with multiple flight construction
3. Enclosed hot elevator
4. Storage Hopper
5. 10 cubic foot capacity (1000 lb.) Batching Hopper
6. Twin Shaft Pugmill—1000 lb. batch
7. Self-elevating platform

The new Littleford Portable Asphalt Plant gives you big plant quality mixes at small plant cost. You can save up to 40% on bituminous black top by producing your own mix. No more costly delays waiting for black top trucks to arrive . . . control your mix from the pugmill to the pavement.

The Model 121-30 has the versatility and flexibility to produce all types of mixes at the lowest possible cost and incorporates many new and improved design features not found on any other plant of this size. No other plant of this size has the complete line of auxiliary equipment for you to custom make a plant for your operations . . . *you* receive all the profits!

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☐ **ASPHALT PLANT** —Send me, without obligation, Bulletin 37 that illustrates and describes the Littleford Model 121-30 Portable Asphalt Plant.

☐ **PAVER-SPREADER**—Please send Bulletin 33 on the True-Lay Paver-Spreader shown on the next page.

☐ **PORTABLE ROLLERS**—Bulletin 32 on the Model 160 Portable Roller also shown on the next page.

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OFFICES IN CINCINNATI, OHIO AND ALBANY, NEW YORK

LITTLEFORD

3-5 TON PORTABLE ROLLER *with feather touch*

POWER STEERING

Facts Are Contained in Roller Bulletin 32. Use Air Mail Reply Card to Request Your Free Copy.

Full time power steering brings fingertip maneuverability to this 5-ton giant—check these additional outstanding construction and operating advantages:

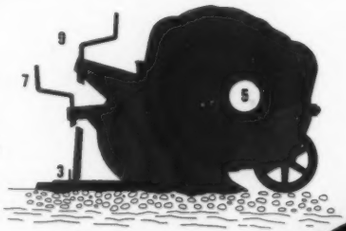
1. Hydraulic power trailing conversion which permits operator to engage towing truck pintle hook from the operator's seat.
2. Removable trailing wheels.
3. Hydraulic raising and lowering system located entirely within roller housing.
4. Choice of air or water cooled engines.
5. Electric brakes for trailing wheels available.

The 3-5 ton model complements the Littleford line of portable tandem rollers which also include a 2-3 ton model and a complete line of small rollers. Write today for descriptive bulletin.

Removable trailing wheels permit rolling of surfaces close to buildings, curbs, other obstructions. In fact the Model 3-5 can roll within 3½" of any obstruction and thus eliminate time-consuming hand tamping.

TRUE-LAY PAVER-SPREADER

1. Strike-off blade
2. Compaction chamber
3. Adjustable screed
4. Screed hinge
5. Material hopper
6. Patented balancing beam
7. Jacks for adjusting screed
8. Balancing wheels
9. Jacks for adjusting balancing wheels



Compaction counts! . . . and you can count on Littleford's True-Lay for true compaction. The reason: the True-Lay is heavier, it's designed so that 75% of the combined weight of the unit and the asphalt is brought to bear on the screed.

The 2-in-1 tow type True-Lay does double duty: (1) paves a mat 4 ft. to 10 ft. wide, up to 6" in depth; and (2) spreads 4" maximum size stones. For Bulletin 33 containing full information on this remarkable machine mail the reply card below.

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REQUEST YOUR FREE LITERATURE

Seen here drilling a hole into the side of a hill, the B-60 Sidewinder can be used to tap off undesirable trapped water in slide areas.

the United States. The operation involves boring a series of horizontal holes with sectional augers or "N" rods. Sometimes the holes can be drilled dry with conventional augers, but there are times when the formation tends to cave. Drilling with "N" rod and bit attached and using drilling mud, the hole can be drilled, sealed, the rod extracted, and the perforated pipe installed. All of this can be done with one drill unit.

The Sidewinder will also perform such operations as horizontal sidewall boring for blasting, under-highway boring of large-diameter holes, soil sampling, diamond core drilling, wash boring, and will accommodate air-actuated hammer drills on a horizontal level.

The demonstration was attended by a group of about 70 people representing highway departments, government agencies, engineering firms, and members of the technical press. On the day after the demonstration, the group was treated to an exciting day at the 500-mile race at the Indianapolis Motor Speedway.

For further information on these machines, write to Mobile Drilling, Inc., Dept. C&E, 960 N. Pennsylvania St., Indianapolis, Ind., or use the Request Card that is bound in at page 18. Circle No. 125.

Book discusses electric motors and generators

The purpose of "Electric Motors and Generators" is to provide information for those outside electrical engineering, as well as a useful survey for those professionally interested. Avoiding difficult theory, as far as possible, the book describes all types of dc and ac motors and generators, covering design, construction, installation, operation, and testing. Over 400 illustrations supplement the text. Contributors to the book are E. T. G. Emery, F. Harrabin, B. C. Lee, J. H. R. Nixon, and E. T. A. Rapson.

Priced at $12, the book may be purchased from the Philosophical Library, 15 E. 40th St., New York 16, N. Y.

Text gives data on statically indeterminate structures

A unified approach to various structural philosophies and material not heretofore published are offered in "Statically Indeterminate Structures: Approximate Analysis by Deflected Structures and Lateral Load Analysis," by Jack R. Benjamin.

Detailed procedures of sketching deflected shapes and their analysis are completely developed. The approximate analysis of structures under lateral loads is covered for both rigid-frame and shear-wall structures.

The concluding chapters of the book deal with some aspects of the philosophy of structural engineering. A short discussion of structural forms is designed to supplement the detailed analysis and design procedures found in standard works. The relationship between analysis and design is discussed. Elastic and plastic analysis procedures are also treated.

Recent advances in shear-wall structures are covered, and much of the material on this subject is original. Information is also given on the plastic collapse of assemblies, the efficiency of structural forms, and the relationship of analysis to design and economic studies.

Formulas and diagrams abound.

The price of the 350-page book is $11. It may be purchased from the publisher, McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 36, N. Y.

What should you get when you buy a dredge?

Important question! But the answer is even more important – because your selection of a dredge should result in an investment, not a gamble. You will want to consider much more than just a price tag and look for essential supplementary values that no builder but Ellicott can give.

In terms of profitable dredge operations, Ellicott extras will help move water-bound solids at less cost—with greater savings for you.

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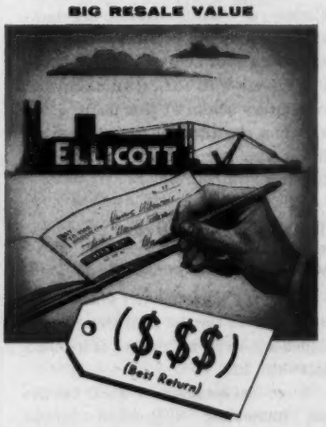

Come to Ellicott first for real evaluation of factors you must consider—in your own interest—in selecting the only quality dredge best suited to your needs.

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Successors to the floating dredge business of the Bucyrus-Erie Co. and the American Steel Dredge Co. Complete engineering sales and repair parts service.

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Labor review

Portland pile drivers walk out; breach-of-contract suit brought by AGC

On-again-off-again negotiations between the Associated General Contractors' Portland (Ore.) chapter and Pile Drivers Local 2416 reached another impasse—this one leading to a strike by the local and a breach-of-contract suit by the contractors.

The local voted to strike after rejecting for the third time a 53-cent, 3-year wage package accepted by other carpenter locals in Portland, western Oregon, and southwestern Washington.

The walkout halted work estimated by the AGC at between $15 and $18 million. The contractors' suit, filed in the federal district court, charged Local 2416 and the Carpenters' International with "failure to honor and abide by a contract which we have concluded in good faith," according to an AGC spokesman.

The contractors claimed that acceptance of the contract by three out of five carpenter locals put it into effect for all locals, according to the voting procedure followed in the past. The International became a party to the suit when a member of its executive board notified AGC of the results of the Portland vote.

Major issues blocking agreement were wages and hiring hall, but AGC said the pile drivers' demands add up to an entirely different contract from the ones accepted by other carpenter locals. The union's wage demand reportedly was a 35-cent increase in a one-year contract. Informally, a 45-cent, 2-year package was also mentioned.

AGC, whose bargaining strategy includes a "strike-against-one-is-a-strike-against-all" policy, was refraining from lockouts against the pile drivers with the explanation that retaliatory action at this point would violate a contract the association believes, and is contending in court, is in effect.

Three-year wage freeze set in four-year pact with Illinois carpenters

A 4-year agreement, which puts wages on ice for the final three years, ended a 3-week walkout of carpenters in Pekin, Ill.

Some 300 members of Local 644 get an immediate 12½-cents-an-hour wage boost establishing a new rate of $3.62½ an hour, and a 7½-cents-an-hour contribution will set up a health-welfare fund. Wages will be increased 15 cents an hour on November 1 and a final 15 cents on May 1, 1960, when the pay scale will be frozen at $3.92½ an hour. No other changes will be made through 1963, according to a spokesman for the contractors. The Home Builders Association of Pekin bargained for the builders.

Southern Ohio road builders struck by operating engineers as negotiations fail

Between 4,000 and 5,000 operating engineers walked off road construction jobs in southern Ohio as negotiations with the Ohio Contractors Association failed to bring about an agreement.

The union notified individual contractors that they could escape the strike if they accepted its demand of a 10-cent pay raise immediately, a 10-cent contribution to health and welfare beginning November 1, and another 15 cents in pay next year in a 2-year pact, according to a union spokesman.

The association's offer reportedly included a provision that would have made the union responsible for hiring-hall penalties under Brown-Olds. The union spokesman said that for 40 years a successful exclusive hiring hall has been in operation without any written agreement and that the union is anxious to make the arrangement legal by writing it into the contract, but refuses to take sole responsibility for penalties.

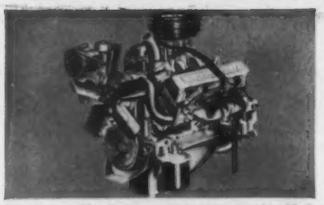
The union wants until November to make arrangements for a health and welfare fund, with the 10-cent contributions by the contractors to begin then.

"Little restraint" shown by Nevada unions as first demands come in

Employer hopes for cheap settlements with the building trades this year faded as first demands came in from Nevada unions. According to the Federated Employers of Nevada, Inc., the unions are showing "little restraint" by asking for increases of 20 to 25 cents an hour this year.

The association, which comprises

Take a haul 20 miles each wa



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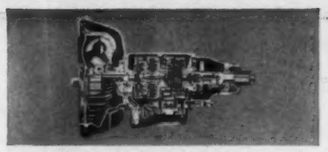
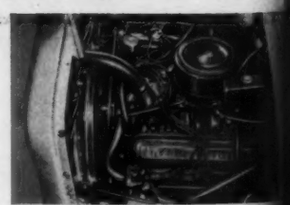


Surer working! INTERNATIONAL Trucks Select-O-Matic semi-automatic transmission torque converter is designed around major components of precision cast aluminum. Mirror smooth hard shell surfaces provide over 90% efficiency... intake oil filter assures they stay that way. IMPORTANT! Conventional design gear setup simplifies maintenance for any mechanic.



Easier servicing! V-8 engine measures 31 in. long. There's no "dog house" cramped working space in the cab. All servicing is done under the hood . . . every component is readily accessible. Fast accurate standard parts and service cuts down

among others, the Nevada AGC chapter, the Southern Nevada Home Builders, and the Las Vegas Builders' Exchange, reports that negotiations have been opened by the bricklayers, sheet-metal workers, and the roofers.

The bricklayers have asked for a 25-cent raise this year and 15 cents more in 1960, in a 2-year agreement. The masonry contractors have offered 12½ cents each year for a 3-year contract, with concessions on travel, subsistence, and cleanup, FEN says. The bricklayers' present scale is $4.15 an hour.

Two-year pattern develops in Erie, Pa., bargaining as five crafts settle

A 2-year, 22½-cents-an-hour pattern shaped up in Erie, Pa., as five crafts settled and seven others continued contract talks with the Erie Construction Council, Inc.

The carpenters and laborers split the initial 12½-cents-an-hour increase into 7½ cents for health-welfare and 5 cents in wages. The carpenters are now getting $3.54 an hour and the laborers, $2.60. A 10-cents-an-hour pension fund contribution, previously negotiated, continues for the laborers. Both crafts will get another dime in the pay envelope on May 1, 1960.

The bricklayers, already receiving 7½ cents an hour for health-welfare, add another 2½ cents to health-welfare, plus 10 cents an hour to wages. The new wage rate is $4 an hour, with a 10-cents-an-hour boost due in 1960.

Chicago builders attack pact of mason contractors-bricklayers as "threat to labor peace"

The Builders Association of Chicago, Inc., slammed the new one-year, 25-cent package negotiated by the Masons Contractors Association of Cook County and Bricklayers' Local 21 as inflationary and a threat to labor peace.

In a 4-column ad in the *Chicago Daily News*, the association charged that "the construction industry's pattern of orderly, gradual, and balanced wage increases to the various building trades has been upset this year." It explained:

"Historically, the contracts between the Builders Association and Local 21 have set the wage paid to bricklayers by all general contractors, masonry subcontractors, and home builders.

"This year the Mason Contractors negotiated a separate, one-year contract outside of the long established channels, granting their own employees an increase of 25 cents to $4.07½ an hour plus employers' welfare contributions.

"When the Mason Contractors and Bricklayers made their separate deal, a number of other building-trade locals were planning to 'hold the line' at 1958 wage levels, or were limiting their requests to increases ranging from 10 to 18 cents an hour.

"A boost of 25 cents an hour, or $10 weekly, to every employed bricklayer under a one-year contract cannot be justified by increased living costs, by increased productivity, or by any shortage of skilled craftsmen.

"The Bricklayers-Mason Contractors' maneuver places every other building-trades union leader on the spot with his members, and threatens to precipitate a new round of inflationary wage demands in the building trades and in other industries. . . . An excessive horizontal increase to the building trades can well lead to a chain reaction of inflationary wage boosts in other industries. Increased living costs and higher taxes will result inevitably. Nobody wins."

Southern California carpenters get 45-cent wage boost in two-year agreement

Negotiating committees representing four southern California employer groups and the Carpenters Union reached agreement on a 2-year settlement that raised hourly scales some 7 per cent in mid-June and again next year. The agreement is expected to set the pattern for other Southland contracts now open.

Under the settlement, carpenters received a 22½-cent raise in hourly pay, effective June 15; 22½ cents more will be added to wages on May 1, 1960. In addition, the agreement increases the subsistence area and raises subsistence pay from $5 to $6 a day. The new journeyman scale will be $3.60 an hour.

The carpenters went into negotiations demanding a 50-cent boost in pay, a 5-hour cut in the workweek, and some 20 other contract changes. In addition to the $3.60 scale, employers pay 10 cents hourly for health and welfare and 10 cents hourly for pensions.

V-8 POWERED INTERNATIONAL

racks up 2 extra trips per day!

Try an INTERNATIONAL V-8 powered truck on your job—this compact-design tandem-axle model, for instance. It gives you the newest, most advanced combination of V-8 engine and semi-automatic transmission in the business. There's perfect unit-to-job balance for application in hilly country or flat, whether you're dumping near the job or miles away!

The husky, all-truck V-8 power plant—345 cu. in. displacement—has a power range with the guts to pull out of a "hole" or pull ahead on the highway.

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Get the whole story on this 33,000 lb. GVW unit or on other INTERNATIONAL models to do your job and do it faster. See your INTERNATIONAL Dealer today!

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WORLD'S MOST COMPLETE LINE

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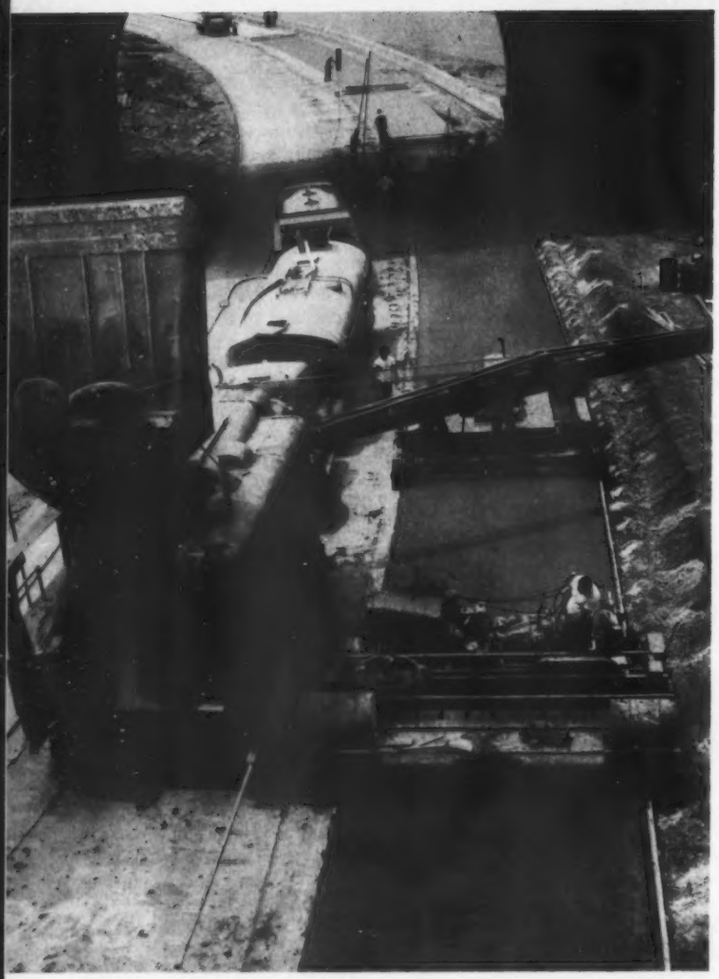


Paving of an important stretch of Philadelphia's expressway system is done by a train headed by a Rex 34-E paver. The Blaw-Knox spreader strikes off the mix at 8 inches, and welded-wire reinforcing is placed. Then the paver dumps additional concrete which is spread to provide a 10-inch depth for the slab. A Jaeger transverse finisher and Koehring longitudinal float follow.

Paving train turns in smooth job

Concrete roadways are paved in 12 and 24-foot widths to extend expressway link for city of Philadelphia

by ANTHONY N. MAVROUDIS
field editor

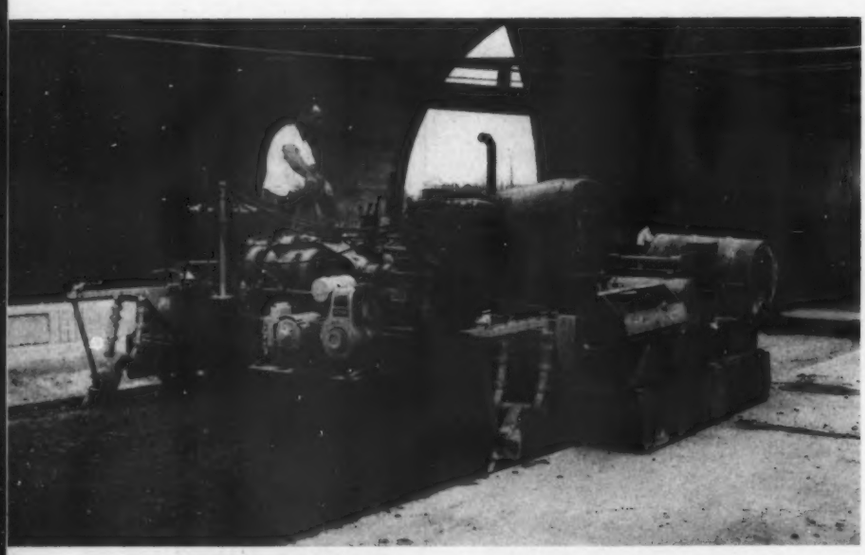
A mechanized train, paving two 36-foot roadways at a rate of 2,100 linear feet per 8½-hour day, has completed an important link in Philadelphia's expressway system—the link between Arch Street and Fairmont Park along the west shore of the Schuylkill River.

This section, awarded to Lipsett, Inc., New York City, under a $7,584,000 contract, extends the completed Schuylkill Expressway south into Philadelphia. Eventually, this new section will be extended to the new Walt Whitman Bridge that spans the Delaware River between Philadelphia and Camden, N. J.

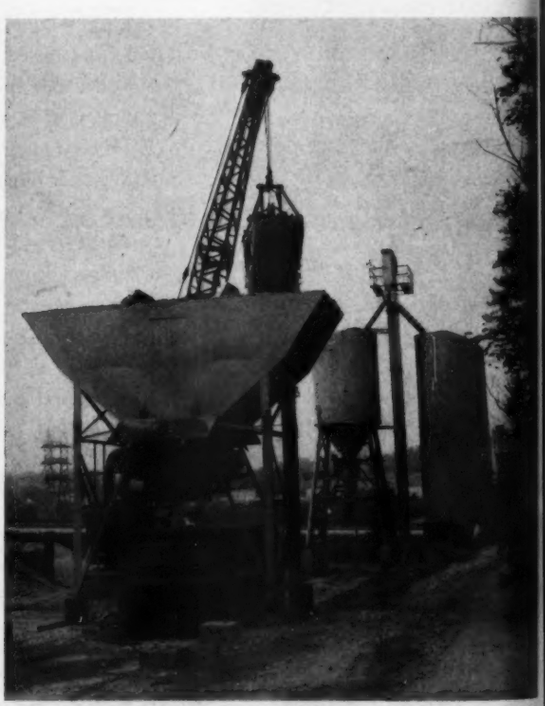
The Lipsett contract roughly parallels the old West River Drive, which had to be relocated to accommodate the expressway alignment. This was accomplished at sections by pushing fill out into the Schuylkill River to support the relocated Drive.

The expressway, consisting of two 36-foot roadways, was paved in 24- and 12-foot widths at rates hitting 2,100 linear feet per 8½-hour workday. Lipsett sublet the paving operation to Glasgow, Inc., Glenside, Pa., while concentrating on the many structures on the project. Glasgow used a Rex 34-E paver to lead the paving spread and dump concrete in front of the Blaw-Knox spreader. Enough concrete was placed to allow the spreader to trim the mix to an 8-inch thickness so that welded-wire mesh reinforcing could be placed at this level.

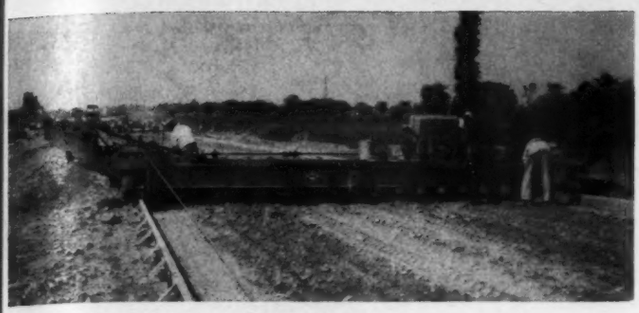
Two Jackson vibrators, rear-



Making the first pass, the Blaw-Knox spreader trims the mix to an 8-inch depth and pulls two Jackson vibrators through the concrete adjacent to the forms. The vibrators were not used on the second pass. Paving of the 36-foot roadways is done in 12 and 24-foot widths. The extension of the expressway was handled under a $7,584,000 contract, with Glasgow, Inc., Glenside Pa., subbing the paving.



The batch plant supplying the job consists of a Johnson 3-compartment aggregate bin, charged by a Koehring crane, and Johnson cement silos with a capacity of 1,200 barrels. Six aggregate stockpiles are maintained—two for each size of material. While a stockpile for one size was being built up, the crane worked the second stockpile of the same material.



Along the 24-foot lanes, a Blaw-Knox subgrader is used to trim the grade between the forms.

A Buckeye subgrader trims the grade for a 12-foot lane. Roadways are separated by a concrete divider where they are close together, by a grassed median where they are far apart.

mounted on the spreader, were pulled through the concrete along the forms during this first pass. To complete the 10-inch slab thickness, the spreader had to back up and make a second pass after the paver dumped additional concrete over the wire reinforcing. The vibrators were not used during this second pass.

The spreader was followed by a Jaeger double-screed transverse finishing machine, trailed by a Koehring longitudinal floating rig. Behind the Koehring float, a crew of finishers with aluminum hand lutes finished the slab surface. This was followed by a burlap drag that was pulled over the concrete to obtain the desired surface texture. The concrete was then covered with Sisalkraft curing paper. Forms were stripped the following day.

Work ahead of paver

Glasgow had over 10,000 linear feet of Heltzel steel forms on the job and kept a minimum of 2,000 feet of forms set, at all times, ahead of the paver. The contractor used a system of high and low steel stakes to align the form trench and set the forms. High stakes were very carefully positioned by transit fixes before being driven into the subgrade. A string, attached between the stakes, guided the Cleveland Formgrader that prepared the form trench. After the form trench was shaped, the short, low stakes were positioned by measuring an offset from the high stake guide line. These low stakes were used to align the form sections being placed.

An air hammer, powered by a Le Roi Tractair self-propelled air compressor, was used to drive the steel stakes that held the forms. Then a Buckeye subgrader, riding on the forms, trimmed the subgrade to the desired elevation. A Buffalo-Springfield 10-ton tandem roller then compacted the grade between the forms. Screenings were spread atop the subgrade by a contractor-built spreader that rode on the forms while being pulled by the dump truck delivering the screenings. After the thin lift of screenings was compacted by a 5-ton tandem roller, its grade was checked with a scratch board.

Batch plant

Glasgow used a Johnson batch plant, consisting of a 3-compartment aggregate bin charged by a Koehring 605 crane, and a cement silo-bin setup that had a storage capacity of about 1,200 barrels. Cement was shipped by rail to an unloading site nearby, loaded into trucks, and delivered to the batch plant site. The trucks dumped into a hopper, ad-

(*Continued on next page*)

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- Fastest hitting rammer
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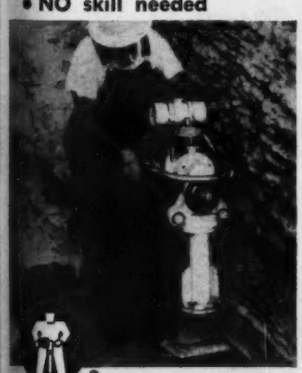

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Bridge Forming . . . By using Symons high strength forms, contractor was able to reduce pouring time, use fewer men and cut 100 days off bridge forming job.

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Symons can help you with your forming problems. Our engineers will prepare complete form layouts and bill of materials at no obligation. Other Symons products used in road building are bar ties, tie chairs, column clamps and shores. Forms, shores and column clamps may be rented with purchase option—rentals to apply on purchase price. Information on Symons products and services sent FREE on request.

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Stakes are driven for Heltzel forms along a 24-foot-wide stretch of the expressway system by an air hammer powered by a Tractair compressor.

(*Continued from preceding page*)

jacent to the silo, which fed a screw conveyor transferring the cement to the enclosed bucket elevator. Cement was loaded into either the loading bin or ground storage silo through the two-way chute atop the bucket elevator. Electrically operated controls handled the weighing and dumping of the twin 799-pound cement batches, which were simultaneously released into the cement boxes of the batch trucks.

Aggregates, consisting of sand and 2A and 2B stone, were also delivered to the plant site by dump truck. Here, the trucks dumped the aggregates into the stockpiles adjacent to the aggregate bin. There were six stockpiles, two for each size of aggregate. Newly delivered stone or sand could be dumped into one pile while the other pile supplied the aggregate bin. At least 24 hours had to elapse before the delivered aggregates could be used. During this period, the unused piles were wetted down to assure a known and uniform moisture content before the material was used in the batch plant.

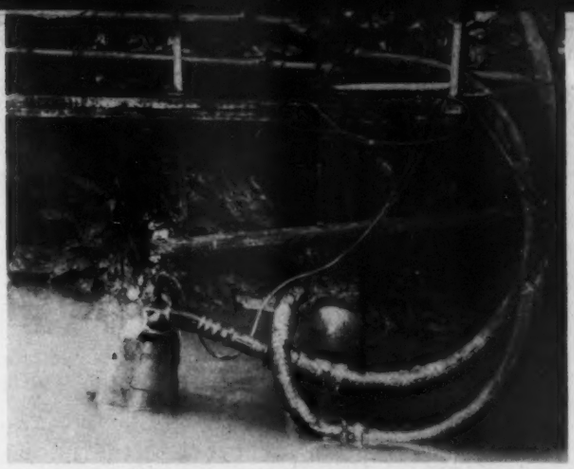
A Michigan 125A front-end loader shaped the stockpiles and pushed aggregates within reach of the Koehring crane. The Mack and International batch trucks were first loaded with the aggregates; then they traveled over to the cement bin to pick up the following amounts per batch: 1,395 pounds of sand; 1,482 pounds of 2B stone; and 1,480 pounds of 2A stone. Water was supplied to the batches by a 5,800-gallon water tanker connected to the paver.

The two 36-foot roadways are separated by a depressed grassed median strip wherever the roadways are far apart. A raised concrete divider separates the roadways where the median strip is 4 to 10 feet wide.

Samuel Clayton was the general superintendent, and Percy H. Brown the paving superintendent for Glasgow, Inc. Warren Lallier was the superintendent on the job for Lipsett, Inc. Stephen Ostimchuk was the resident engineer for the Pennsylvania Department of Highways. THE END

A Michigan 125A front-end loader was used to shape the stockpiles and push material within reach of the Koehring crane at the batch plant.

Aided by an aligning system of high stakes, a Cleveland Formgrader prepares the form trench ahead of the paving spread.



IN CONTINUOUS OPERATION since December, 1957, these Flygt B-80L submersible electric pumps are handling water containing about 20 per cent of silt and concrete during construction of more than a mile of concrete-lined tunnel for a flood-control project on the Blackstone River at Worcester, Mass. Two additional B-80L's are at work, and each of the four pumps is moving 185 gpm against a head of more than 80 feet. The pumps have had only one routine maintenance check, for minor repairs, since the operation began.

P. S. Cauchy, master mechanic (center) and Standard men Jim Sreenan and Fred Schmalfeldt (left and right) settle details on fuel deliveries.

HOW Standard Oil serves S.J. Groves on Bong Air Force Base job.

Contractor moves up to 130,000 cubic yards of dirt in day...Standard Oil provides 'round the clock delivery of fuels and lubricants.

Situation: S. J. Groves is building 11,500 ft. runway and taxi strips at Bong Air Force Base, Kansasville, Wisconsin. Men under A. J. McKay, Groves' project manager, are moving 14 million yards of dirt, putting down a million tons of gravel base and pouring 222,000 cubic yards of concrete.

What was done: When Standard Oil received the order from Groves, two lubrication specialists—Jim Sreenan and Mike Harpham—from Standard Oil's Milwaukee offices went into action. They surveyed the fuel and lubrication needs of the 140 pieces of equipment on the job. They specified the Standard Oil products that would (1) do the job without requiring multiple inventories, (2) reduce the chances of misapplication. Then these men arranged for storage of fuel and lubricants on the site and set up a delivery program with the Standard Oil agent located at Silver Lake, just six miles from the construction job.

Standard Oil agent, Fred Schmalfeldt, and his crews make deliveries to the job between 5:30 and 7:00 each morning and night. In addition, Groves' Euclid dirt loader is serviced by them at noon and midnight. Plus this, a standby truck is stationed at the base throughout the night.

What you can do: This is Standard Oil service to contractors. To get this kind of service on your job, all you have to do is call your nearby Standard Oil office anywhere in the 15 Midwest and Rocky Mountain states. Or write **Standard Oil Company (Indiana), 910 So. Michigan Ave., Chicago 80, Ill.**

You expect more from STANDARD and you get it!

E. D. (Red) Sargent, Groves' job superintendent, and Jim Sreenan, Standard Oil lubrication specialist, square things away. Jim has the experience for such work as this. He has an engineering degree from the University of Wisconsin. He was an instructor at Standard's Sales Engineering School after graduating from it. He has four years' field experience.

HRB bulletins report data on concrete, roads

Bulletin 206, "Effects of Concrete Characteristics on the Pulse Velocity: a Symposium," and Bulletin 207, "Load-Carrying Capacity of Roads as Affected by Frost Action: Final Report," are available from the Highway Research Board.

The first bulletin contains papers on: evaluation of pulse velocity tests made by the Hydro-Electric Power Commission of Ontario; application of pulse velocity tests to several laboratory studies of materials; evaluation of pulse velocity tests; eight years of pulse velocity tests on concrete pavements in Kansas; and the effect of certain variables on pulse velocities through concrete.

Other topics are: use of the soniscope by the Concrete Division, U. S. Army Waterways Experiment Station; appraising the quality and performance of concrete by pulse velocity measurements; effect of variations in mix design or curing conditions on a pulse velocity-strength relationship; evaluation of pulse velocity tests made with Portland Cement Association soniscopes. There is a general discussion of the nine papers, and a summary of the entire symposium. This bulletin is priced at $1.60.

Bulletin 207 is a report of the Committee on Load-Carrying Capacity of Roads as Affected by Frost Action. It contains the results of the several cooperating state projects. Each of the eight progress reports of the committee is summarized. This bulletin costs 80 cents.

Graphs and tables abound in both bulletins, which may be purchased from the HRB, 2101 Constitution Ave., Washington 25, D. C.

Motel erected in heart of New York City

The first motel to be built in the heart of New York City is expected to be completed next month. Located at Tenth Avenue and 49th Street, the $1.5 million building, called Skyline Motor Inn, is five stories high.

Guests will be able to drive right into the lobby to register and unload luggage without leaving their cars.

This motel is the first in a chain of in-city tourist accommodations planned by Downing Management Corp., New York City, for major cities in the east and midwest.

←For more facts, circle No. 286

Here are some of the reasons you get more when you buy a . . .

1. Distributor Experience. The oldest, largest and most experienced DISTRIBUTOR ORGANIZATION in the rubber-tired tractor-shovel field sells and services the "PAYLOADER" line. They are UNSURPASSED as far as parts, equipment, service facilities and experienced personnel are concerned.

2. Design Experience. Over 2,000,000 engineering man hours have been devoted by HOUGH to the design and development of two and four-wheel-drive rubber-tired tractor-shovels. Almost every "FIRST" in this field is the result of HOUGH pioneering.

3. Application Experience. There have been more "PAYLOADER" rubber-tired tractor-shovels built, sold and in use than all other makes combined. The FIRST integrated front-wheel-drive, rear-wheel-drive and four-wheel-drive models were pioneered by HOUGH for specific applications, handling various materials.

4. Quality. This has long been associated with the "PAYLOADER" name as the result of the highest standards set for all materials, processing, components and final products together with the pride of workmanship of HOUGH employees to build only the BEST.

5. Final Inspection. EACH and EVERY unit built by HOUGH is subjected to final testing on special chassis DYNAMOMETER equipment. All operations must meet or exceed HOUGH's rigid standards.

6. Safety. The boom arm design and position of all four-wheel-drive "PAYLOADER" models keeps ALL moving members AWAY from the operator's area. There is no need for protective screens which restrict visibility.

7. Stability. Exclusive "balanced-design" of HOUGH units reduces "dead weight" and provides a more productive horsepower-to-weight ratio. The low, close-to-machine carry position of loaded bucket results in better balance and less spillage.

8. Ease of Operation. The POWER-BRAKES, POWER-STEERING and POWER-SHIFT TRANSMISSIONS, standard on most HOUGH models, together with TORQUE-CONVERTER drive make "PAYLOADER" units easy to operate. Reduction of operator fatigue increases the amount of yardage handled.

9. Use of Premium Materials. HOUGH has inaugurated the use of HIGH-STRENGTH, LIGHTWEIGHT steel, like USS "T-1", to give added strength with less weight in the boom arms. Reduction of "dead-weight" in front of the tractor-shovel makes it possible to increase the PAYLOAD capacity of the machine.

10. Special Heat-Treating. The "MARQUENCHING" processes used at HOUGH's plant permit accurate dimensional control and maximum load-carrying properties in ALLOY-STEEL gear and shaft forgings. Case-hardened ALLOY-STEEL hinge pins have greater wear resistance.

11. Extra Wear. The cylinder piston rods are HIGH-STRENGTH, HEAT-TREATED forged steel with more than TWICE the chrome plating of most competitive units.

12. Special Testing. All "PAYLOADER" hydraulic cylinders are machined and welded by HOUGH to insure high quality and are individually TESTED at pressures FAR IN EXCESS of the maximum working loads.

13. Shot-Blasting. All welded parts are given special SHOT-BLASTING treatment prior to priming. The peening action of the shot-blast tends to STRESS-RELIEVE welded areas and provides a clean metal base.

14. Economy. The LOWER costs of operation; LESS down-time; LESS depreciation; MORE EXPERIENCED distributor personnel and BETTER service facilities make "PAYLOADER" machines a MORE PROFITABLE investment.

15. Value. Whether a "PAYLOADER" requires a GREATER or LESSER investment than a competitive unit to begin with is secondary. The BEST always costs LESS in the long run. "PAYLOADER" units are BETTER than the rest . . . they're made that way.

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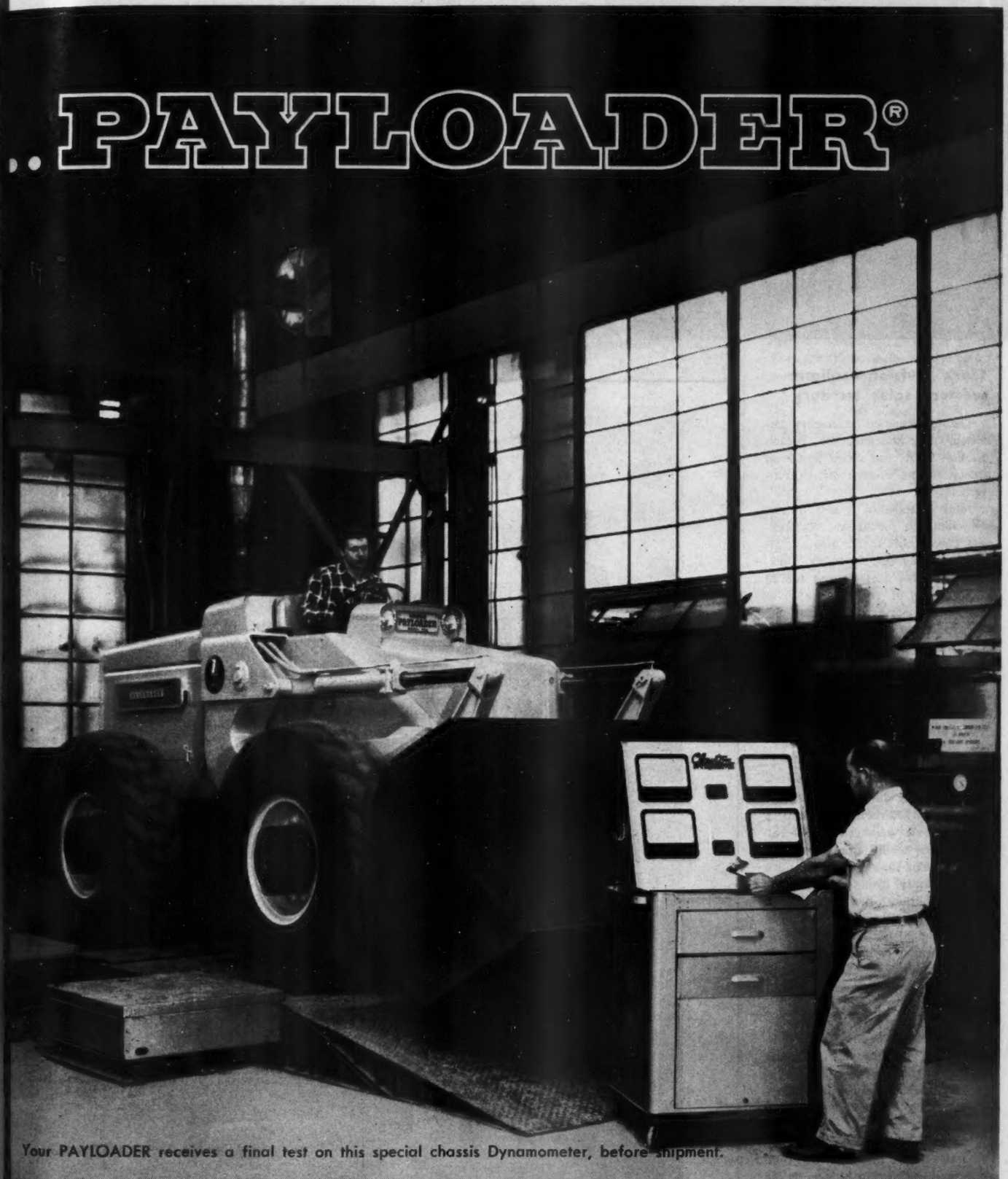

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LIBERTYVILLE, ILLINOIS
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Small-watershed work is big business

Small-watershed work is bringing money and success to many a small contractor. Most of the success stems from a thorough understanding of the work. A conservation contractor must work closely with the Soil Conservation Service and must have the equipment to complete the structures quickly and according to specifications. Work must be planned to keep all machines busy while various phases are being completed.

Typical of the thoroughness of preparation is work south of Rush Springs, Okla., on three structures for the watershed on Rush Creek, a tributary of the Washita River which encompasses a planned watershed covering southwest Oklahoma. The contractor on the job is Paul R. Moody Construction Co., Pauls Valley, Okla., which has a fleet of 1[illegible] earthmovers. Moody Construction is building Sites 2, 4, and 7 of the 60-site watershed.

The contractor's general proced-

A large load of clay is dozed by a turbocharged Cat D7 Series D tractor to cut a new channel for Rush Creek through the dam site.

Clark division realigns western sales territory

The Construction Machinery Division, Clark Equipment Co., Benton Harbor, Mich., has a new territorial lineup for its western district representatives.

John A. Halleran is now district representative for Alaska, Washington, Oregon, and Idaho; John A. Allsup, for Montana, Wyoming, Utah, Colorado, New Mexico, and the El Paso section of Texas; Clarence E. Zermer, for northern California and Nevada; D. W. Pedley, for southern California, Arizona, and Hawaii; and M. J. Harrison, for the states of Oklahoma and Texas, except for the El Paso area.

Two HRB bibliographies on mineral aggregates and soil stabilization

Bibliography 23, "Mineral Aggregates: 1958 Revision," contains a chronological arrangement of all data on the subject from 1780 up to and including 1956. Also included is a supplementary listing of references on distribution of mineral aggregates, arranged by states, as included in the original Bibliography 6. Complete indexing both by subject and by author makes for easy location of a specific reference in this $2.20 bulletin.

"Stabilization of Soil with Calcium Chloride," Bibliography 24, is a compilation of abstracts of the major portion of the literature on the subject. The principal index of the bibliography is arranged by subject; each subject group is arranged alphabetically by author; and each subject-author group—more than one paper on the same subject by the same author—is arranged chronologically. References are numbered consecutively throughout the bulletin for cross reference by subject and for reference from the author index. This bulletin is priced at $2.

The annotated bibliographies may be purchased from the Highway Research Board, 2101 Constitution Ave., Washington 25, D. C.

Kansas Turnpike net revenue was up 42 per cent for the first four months of 1959, as compared with that period in 1958.

Heaping loads of damp clay are pushed into two Caterpillar DW21-No. 470 tractor-scrapers by a Cat D8 Series H tractor in the reservoir area of Rush Creek Watershed in southwest Oklahoma.

ure is to clear the area; cut the core, temporary channel, and structure ditch; backfill the core with impervious material; and move on to the next site while the outlet pipe and toe drains are installed. By the time this has been finished on each of the three sites, the contractor can move back on the first one and complete the embankment.

On Site 2, a Schield Bantam ⅜-yard backhoe cut ditches and core trench and excavated wet areas. Trees knocked down and dozed off the dam site were pulled out of the reservoir area by a Hyster-winch-equipped Caterpillar D6 tractor.

Embankment material was cut from borrow areas about 40 feet from the dam. Damp clay was picked up in the reservoir area; dry sandy clay and sandstone in the spillway. Underground springs throughout the reservoir area made much of the clay too damp for compaction. Cuts had to be shallow, and excavated material had to be blended with drier material.

Under these conditions, two Cat DW21-No. 470 tractor-scrapers worked each area alternately about 45 minutes, spreading the material thinly, in 0.3 to 0.6-foot lifts, across the embankment. A 500-pound-per-foot tandem disk, pulled by a turbocharged Cat D7 Series D tractor, mixed the wet and dry material. Strong winds helped dry the fill.

Heaping 20-yard loads were packed into the scrapers in less than a minute by a Cat D8 Series H tractor. The DW21's completed the cycle in 3½ to 4 minutes, climbing the spongy 4 per cent grade in third gear on the 800 to 1,400-foot haul. Underground springs made it difficult to stabilize the haul roads, and machines could not take advantage of higher gears. Each DW21 placed about 2,000 bank-yards in a 9-hour shift.

Fill areas

Fill material, dumped in thin lifts by the scrapers, was spread by a Cat No. 12 motor grader, which also maintained the roads. The operator alternated between this grader and the Cat D7, which either pulled the disk to blend the material or dressed the slopes and handled utility dozing work. Fill was compacted in 4 to 6 passes of a Tampo 6×6 sheepsfoot roller pulled by another Cat D7.

Sandstone in the spillway section was ripped for scraper loading by the D8 with Ateco ripper. Only a small amount of hard rock is included in the three sites.

Site 2 is 4½ miles southeast of Rush Springs. The 79,995-yard rolled-earth dam will provide 449 acre-feet of floodwater detention capacity. The 32-foot-high structure will provide 217 acre-feet of storage covering a 28-acre sediment pool.

Front slopes will be 3 to 1, backslopes 2 to 1. The sediment pool will rise from the creek bed at elevation 1255 to the top of the draw-down tube at elevation 1271. The face of the dam will step back across a 10-foot berm at elevation 1270 and rise to the 14-foot crest at elevation 1286.9. This berm will help protect the face of the dam from washing. A 70-foot-wide emergency spillway cuts along the east buttress at elevation 1281. Normal flow through the dam will be handled by a 17-inch concrete outlet pipe under the center of the dam. Total drainage will be provided by a gated 10-inch bituminous-coated corrugated-steel pipe leading to the outlet pipe.

The other two sites will have similar structures. Site 4 will provide 719 acre-feet of floodwater detention capacity. The 32-foot-high 83,526-yard rolled-earth dam will provide 330 acre-feet of storage covering a 44-acre sediment pool.

Site 7 will provide 217 acre-feet of floodwater detention capacity. The 25-foot-high 48,000-yard rolled-earth dam will provide 109 acre-feet of storage with a 15-acre sediment pool.

Also included in the contract are 128.7 cubic yards of concrete and 5,681 pounds of reinforcing steel for the outlet structures.

THE END

GMC Operation "High Gear" brings you construction trucks with the lowest prices, biggest loads, most economical power and longest engine life!

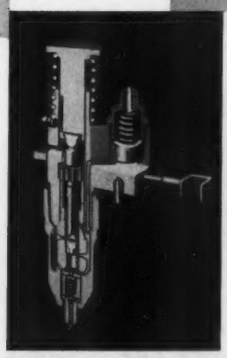
GMC Operation "High Gear"—the industry's biggest engineering, design and quality-control program—brings you today's most dependable trucks. They are built to increase your profits by drastically cutting your hauling costs. Your GMC Dealer can prove it.

GMC Truck & Coach—a General Motors Division.

...t prices — This GMC 450 with tandem rear ... the lowest-priced six-wheeler in the 35,000 lb. class . . . saves you several hundred dollars. In ..., you get plus-value features throughout as ...rd equipment—proved, heavy-duty 6-cylinder en... ...gged frame and 7,000 lbs. capacity front axle.

Biggest loads — GMC builds 13 special off-highway models to haul the biggest loads, up to 63,000 lbs. GVW. Here are a few examples of the built-in toughness that is standard — extra heavy-duty clutch, rugged straight-through frame and sturdier sheet metal.

Longest engine life — All GMCs are *true-truck* built, made to last. Engines with M-400 bearings that have 7 times longer life, rifle-drilled connecting rods assure positive lubrication. Cabs are sturdily reinforced for lasting service on the most rugged jobs.



Most economical power — This is the heart of the fuel system. GMC injectors that *meter, time, inject* and *atomize* the fuel. These, plus many other GMC "exclusives", make GMC 2-cycle diesel engines the most economical you can get.

GMC
GENERAL MOTORS CORPORATION
TRUCKS

...m ½-ton to 45-ton . . . General Motors leads the way!

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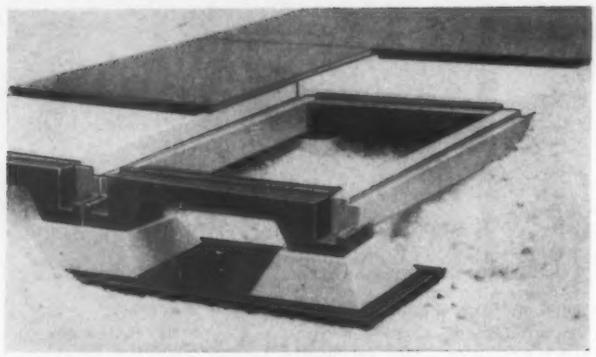


The individual components making up the prefabricated road consist of foundation blocks, cross members running laterally, prestressed-concrete girders running longitudinally, the prestressed-concrete load-carrying sections, and the wearing surface. The idea for the road was developed in Germany by Walter Schorch, a free-lance commercial artist.

And now . . . a prefabricated roa

A new kind of road—new from foundation to driving surface—which, it is claimed, can be built over any type of terrain in any climate and lessens the need for cut-and-fill work, has been evolved in a kitchen workshop.

Essentially, the road consists of prefabricated sections: foundation blocks, cross members linking the foundation blocks laterally, prestressed-concrete girders joining the blocks longitudinally to provide support for the permanent roadbed, and the prestressed-concrete load-carrying sections, which can be given any kind of wearing surface. Joints are staggered and filled with a bitumino material. The cross members can extended to accommodate a sidew or parking areas.

The foundation blocks are design to suit existing conditions and to ceive the other parts of the road. areas where frost normally rai havoc with the best of ordinary roa the blocks would extend below t frost level; other sections of the ro would rest on these supports, abo the surface of the ground. A simil arrangement could be used for oth situations where unstable footi offers poor support for traffic lanes.

Since the roadway is not directly o the ground, the space beneath it c be used for the installation of wat lines, sewers, or automatic automob guidance system.

The road would require the service of either a central or mobile pla where all parts, except the foundati slabs, could be built to standard spec fications. These parts could then b transported to the construction site.

Repair of the driving surface woul be relatively simple: the damage section would be removed complete and a new part inserted in its pla in two or three hours by a mobil crane made especially for this pur pose. The load-carrying section is de signed to require a minimum of re pairs and may be left in place per manently.

If bituminous concrete is used t surface the road, it is applied direct to the load-carrying slab. The whit traffic-lane marks would be a perma nently built-in feature of this type o surface.

The new road is the brain child o Walter Schorch, a free-lance com mercial artist and illustrator o Malsch, a village near Karlsruhe, Germany. His work with various German industrial concerns requires him to do a lot of driving, and on one of his trips he was delayed for some time by a highway repair job. Wondering if some system couldn't be worked out to speed such work, he hit on the idea of using prefabricated sections of standard size that could be installed in a roadway in a minimum of time. Today's roads are not adaptable to this type of repair, but Schorch came up with the idea of a type of road that could take standardized repair sections.

Mr. Schorch, through the Intercontinentales Constructions Bureau of Malsch/Karlsruhe, West Germany, is seeking licensees in North America for the construction of this patented prefabricated road.

People from this country, Australia, Holland, and the Middle East have indicated an interest in the idea, not only for highway and street construction, but for runways and as a bed for rail traffic. Qualified engineers estimate that the cost of building the road is 20 to 25 per cent below that of conventional roads. Maintenance expenses would also run less—both for labor and material. THE END

ANTHONY DUMP BODIES

WORLD'S LEADING LINE OF QUALITY DUMP AND TRAILER BODIES

bigger loads

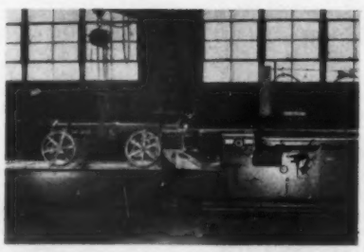
greater stability

faster dumps

New Anthony Teleramic Twin Out-Mount Telescopic Hoists

New Anthony Teleramic Twin Out-Mount Telescopic Hoists – lighter, stronger, faster lift for more payload. Eliminates deadweight of cams, links, arms, etc. Mounted lower, wider for greater stability. No well necessary because of twin out-mount. Simplified design takes less power, less maintenance. Ring-trussed telescopic cylinders eliminate buckle, bulge and bends . . . strongest in their class! Designed for use with Anthony heavy-duty dump bodies – balanced strength and ruggedness. Applies hoist power toward front end of load for maximum mechanical advantage.

Illustrated is the heavy-duty dump body built with extra margin of quality, strength and ruggedness you expect —and get—from Anthony. Have your Anthony distributor recommend the hoist and body you need. If you don't know his name, write us. Anthony Company, Streator, Ill.



Another example of Anthony leadership: world's largest honing machine, specially built for Anthony, produces highest quality precision cylinders.

ANTHONY

DUMP BODIES AND HOISTS · DUMP TRAILERS · LIFT GATE · TRUCK-CRANE

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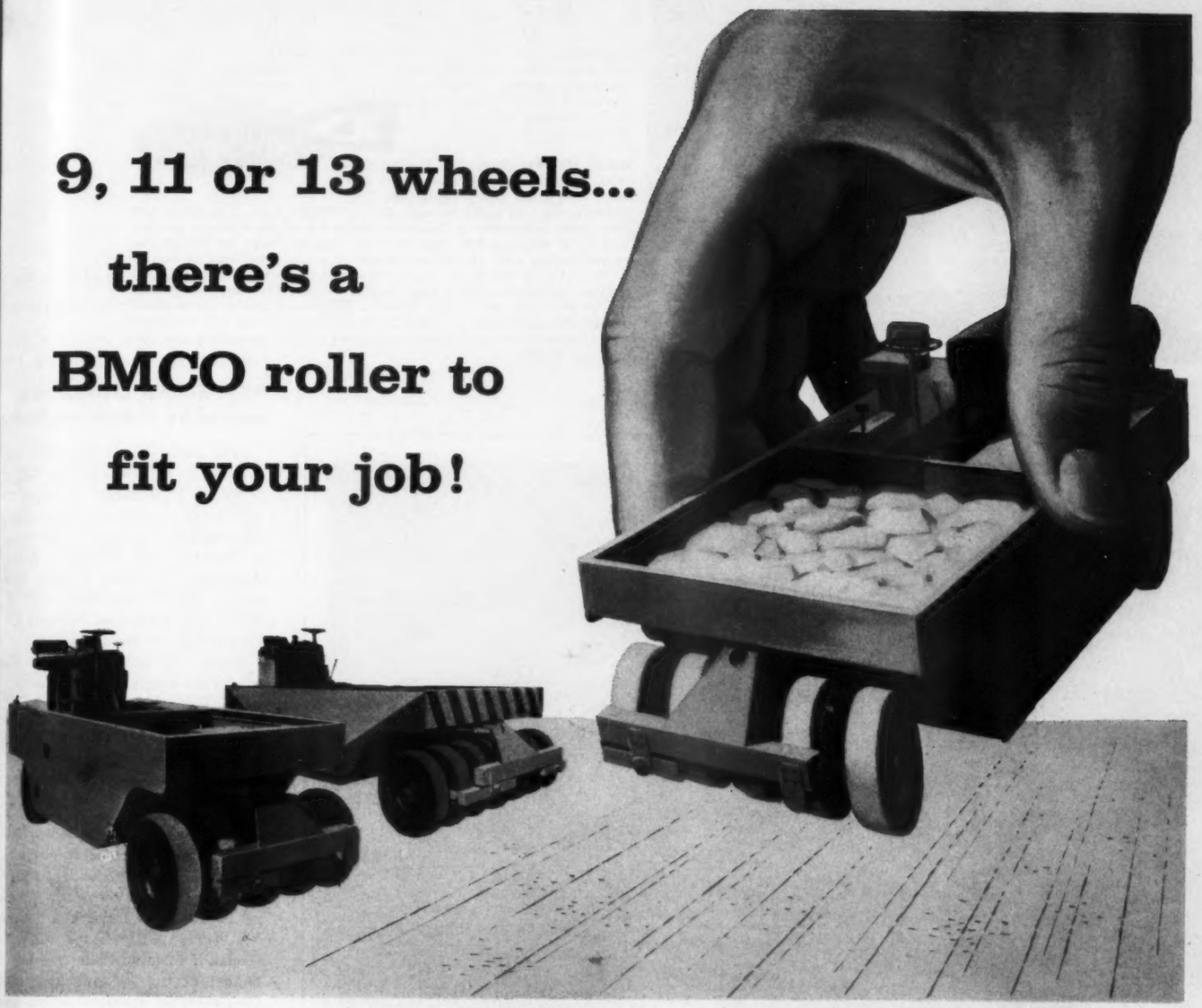
9, 11 or 13 wheels... there's a BMCO roller to fit your job!



SPR-13: Huge ballast capacity and the 99½" rolling width of this 13-wheel model permits cutting compaction time in half. Ballast box on this unit, as well as all BMCO units, is unobstructed by engine, transmission and final drive. Swivel seats allow all models to be operated as easily in reverse as forward.

SPR-11: This intermediate 11-wheel model makes an effective pass of 84". It has four speeds forward, four speeds reverse and power steering, as do all BMCO self-propelled rollers.

SPR-9: This popular 9-wheel model contains all the outstanding features of the larger units. Famous throughout the world as the roller that gets the job done, it has an effective rolling width of 68".

SPR-9A: Same 9-wheel roller as the SPR-9 except the 64 HP engine is replaced with a 40 HP unit.

SPR-9B: Same 9-wheel roller as the SPR-9 except with a 40 HP engine and a heavy duty industrial type clutch and shuttle reversing unit replacing the torque converter and the Revers-O-Matic drive.

Model for model, size for size, BMCO self-propelled rollers have more displacement and more horsepower than any comparable unit. All feature exclusive, independent oscillation of each wheel, assuring uniform compaction without overloading any one tire. It will pay you to investigate BMCO rollers, the most complete line in the world, before you invest in any compaction equipment.

BROWNING®
BMCO
MANUFACTURING CO

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Distributor doings

READY FOR AN UNUSUAL DEMONSTRATION of earthmoving equipment are these men from Lively Equipment Co., Albuquerque, and Euclid Division, General Motors Corp., Cleveland. Both companies cooperated in Operation Earth Lift at the Kirtland sanitary land fill in Albuquerque. The job, done free of charge for the city, involved moving over 15,000 tons of dirt in seven days. One big worker on the job was this Euclid TS-24 twin-engine crawler; the others were another twin-engine and a single-engine scraper. The team that headed the operation are, left to right, Robert K. Garner and Olin A. Lee of Euclid, and Bill Rice, Bill Lively, D. Orton Smith, Cecil Terrel, and Bob Mackey of Lively Equipment. A touch of glamour was provided by Cathy Rocky, left, and Jean Austin.

Pile-hammer distributors named by McKiernan-Terry

Four distributors have been appointed by McKiernan-Terry Corp., Dover, N. J., to handle its diesel C-type double-acting and single-acting pile hammers. The dealers are: Casey & Emmert, Inc., Chicago; Kridler Equipment Co., Fargo, N. Dak.; Mississippi Valley Equipment Co., St. Louis; and George M. Philpott Co. Oregon Ltd., Portland, Ore.

These new distributors will also handle the general McKiernan-Terry line of equipment.

Caterpillar dealer school graduates 1,000th man

Ralph Bowers of Halifax, N. S., Canada, was recently presented with a set of micrometer depth gages for being the 1,000th graduate of a service training school for dealer personnel conducted by Caterpillar Tractor Co., Peoria, Ill. Bowers is a field serviceman for Nova Scotia Tractor & Equipment Co. He graduated from the Hydraulic Systems School and then entered the Fuel Systems, Torque Converter and Engine Test School.

These schools are part of a 6-course program, of 1-week courses, established by Caterpillar to help provide expertly trained dealer servicemen.

Koehring Division names

Equipment & Supplies, Inc., 54 Delwar Road, Pittsburgh, has been named a distributor of the products manufactured by the Koehring Division, Koehring Co., Milwaukee. The dealer will cover western Pennsylvania; the West Virginia counties of Brooke, Hancock, Marshall, and Ohio; and Allegany and Garrett counties in Maryland.

Worthington names three

Three distributors have been appointed by Worthington Corp., Harrison, N. J. Amick Equipment Co., Inc., 1812 Frink St., Cayce, S. C., will cover the entire state.

Mid-Mountain Machinery Co., 37 E. Trent Ave., Spokane, Wash., will serve the eastern part of that state and Buckeye State Machinery Inc., Toledo, will handle the western part of Ohio.

Even large-diameter lengths of Beth-Cu-Loy pipe are easily and quickly joined.

How to Join Lengths of Corrugated Galvanized Beth-Cu-Loy Pipe

One of the many advantages of pipe fabricated from galvanized Beth-Cu-Loy sheets is the simplicity of connecting the lengths. Here's all there is to it:

1. Slip a standard connecting band over the end of the first pipe section, with the band open to receive the second section.

2. Move the second section to within one inch of the first section, and tighten the bolts on the collar of the band. Be sure the corrugations of the band nest into those of each length of pipe.

3. Keep dirt and gravel out of the space between coupler and pipe. Draw up bolts or nuts uniformly, tapping the band with a mallet as the tightening proceeds.

4. With paved pipe, take care to align the paving of each pipe with its neighbor.

Drainage structures made of galvanized Beth-Cu-Loy sheets are strong, light in weight, flexible, and durable enough to last the life of the project. Bethlehem manufactures the Beth-Cu-Loy sheets to the rigid specs of the AASHO. Your fabricator will give you full details on Beth-Cu-Loy pipe; if you wish, we will send you the name of a fabricator near you. Just drop a line to our nearest office.

A crescent wrench and C-clamp are only tools required to secure connecting band to pipe sections.

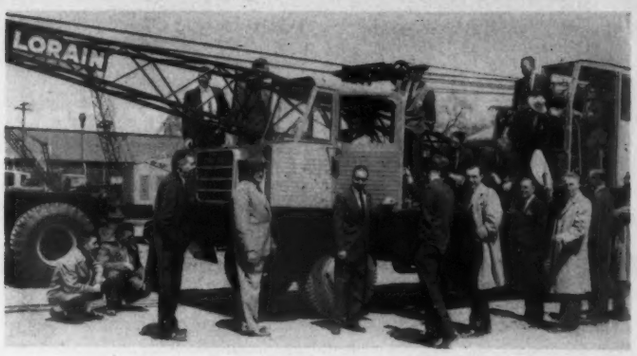
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

For more facts, use Request Card at page 18 and circle No. 292



DISTRIBUTORS' REPRESENTATIVES and Thew Shovel Co. personnel inspect a new Lorain Moto-Crane, Model MC-218, used in one of the field demonstrations at Thew's sales training school. Two 5-day courses, covering the complete line of Lorain shovel-cranes and front-end loaders, made use of movies, slide films, plant tours, and field demonstrations. This was the first time a series of two sales training schools was sponsored by the Lorain, Ohio, firm.

Trojan names dealers for tractor-shovel line

The Trojan Division, Yale & Towne Mfg. Co., Batavia, N. Y., has appointed several new distributors to carry its Trojan tractor-shovel line. Road Machinery Co., 716 S. Seventh St., Phoenix, serves the entire state of Arizona; Macdonald Equipment Co., 5300 Colorado Blvd., Denver, covers all of Colorado; and Connell Motor Truck Co., Inc., 2211 N. Highway 99, Stockton, handles five central California counties.

Nixon Machinery & Supply Co., 1300 Carter St., Chattanooga, serves the eastern part of Tennessee and five northwestern Georgia counties. Manitou Equipment Co., 3251 N. Front St., Portland, Ore., covers that state and five southern Washington counties.

Century White Truck Co., Inc., W. Yellowstone Highway, Casper, Wyo., handles all but five counties in that state.

New B-E distributor

Gill Drilling Equipment Co., Inc., Route 80, Foxon Road, North Branford, Conn., has been appointed a distributor for the line of blast-hole drills, parts, and drilling tools manufactured in the Richmond, Ind., plant of Bucyrus-Erie Co., South Milwaukee, Wis. The dealer will cover the New England states, New Jersey, Delaware, eastern New York, eastern Pennsylvania, all but two Maryland counties, and northern Virginia.

Power Shovel Co., 4913 Massachusetts Ave., Indianapolis, has added Hydrocranes to the line of excavating and crane equipment it distributes for Bucyrus-Erie.

New Clark dealers

New distributors have been appointed to sell and service the Michigan line of equipment manufactured by the Construction Machinery Division, Clark Equipment Co., Benton Harbor, Mich.

Road Machinery & Supplies of Fargo, Inc., Suite 6789 Little Bldg., Bismarck, N. Dak., will cover the entire state. Road Machinery & Supplies of Minneapolis, Inc., 210 E. First St., Duluth, Minn., will serve the northern part of Minnesota.

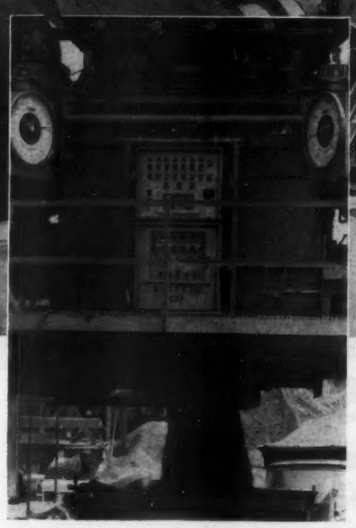
Road Equipment Co., Inc., 4951 River Road, New Orleans, will cover southern Louisiana. With the appointment of this new distributor, Clark has changed the territory of

(*Continued on next page*)

Cedarapids Model H plants *cost less to buy!* Yet their low initial cost includes every quality-benefit found on popular G-Series plants except built-in running gear and self-erection. Running gear can be added, when desired, to all five H-Series models.

Want lowest cost per ton?

buy Cedarapids



By its precise timing operation, the exclusive Cedarapids "Mixer Minder" (top panel above) controls each step of the batching cycle to shave valuable seconds off cycle time and permit production of extra batches per hour. The automatic weigh controls (bottom panel) are correlated with the timing action of the "Mixer Minder" to draw pre-set weights of aggregates and bitumen into the pugmill mixer. The precision of Cedarapids automatic controls permits meeting specifications, cycle after cycle, without variation.

The Most Precise Batching Controls on

CEDARAPIDS MODEL H ASPHALT PLANTS

mean extra batches per hour

How much do two or three extra batches per hour mean to your profit picture . . . especially when you get this additional output consistently, and with *no* additional maintenance or operating costs over slower, smaller-capacity plants? You're right! Cedarapids all-automatic bituminous mixing plants *do* cut your cost per ton to put extra profit in your pocket! It will pay you to get the full story about Cedarapids automatic operation that has been job-proved for 14 years. Ask your Cedarapids Dealer about the many other Cedarapids quality-benefits you get with both the portable stack-up H-Series and the 100% portable G-Series models.

IOWA MANUFACTURING CO. Cedar Rapids, Iowa, U.S.A.

More Cedarapids Bituminous Mixing Plant Benefits that Reduce Your Cost per Ton

- Fast-acting, air-operated bin gates, designed with large, unobstructed openings, prevent bridging, binding or sticking. More aggregate is discharged into the batcher in less time.
- Aggregate batcher discharge gates run the full length of the pugmill mixer. When gates open, aggregate is evenly distributed for immediate fast mixing.
- Efficient "run-around" paddle arrangement in the twin-shaft pugmill speeds the mixing action.
- Faster and more thorough coating of aggregate is assured. The bitumen distributor pan, with twin rows of graduated discharge openings, sprays bitumen over the full length of the mixer.
- Unique plant breather system eliminates leakage of dust from batcher and mixer to prevent escape of valuable fines. Assures ideal working conditions for plant operator.

For more facts, use Request Card at page 18 and circle No. 293

distributor doings

White Oil & Equipment Co., Inc., Bossier City, La. White Oil will now serve all parishes north of and including Vernon, Rapides, and Avoyelles.

Bode-Finn Co., 2650 Spring Grove Ave., Cincinnati, will handle 24 Ohio counties. The dealer has a branch at 1518 E. First St., Dayton.

Gibson-Stewart Co., 11730 Harvard Ave., Cleveland, will cover 30 counties in Ohio. Branch offices are maintained at 3130 Valleyview Drive, Columbus, and at 1064 Laskey Road, Toledo.

Wisconsin Industrial Truck Co., Inc., 3040 W. Capitol Drive, Milwaukee, will serve the Upper Peninsula of Michigan. All activities will be handled through the distributor's office at Powers, Mich.

Kwik-Mix adds dealers

The Dravo-Doyle Co., 2601 Preble Ave. N. S., Pittsburgh, has been appointed an exclusive distributor in western Pennsylvania for the Kwik-Mix Co., division of Koehring Co., Port Washington, Wis. The dealer will also carry the line of Ka-Mo drilling tools in six West Virginia counties.

A. E. Finley & Associates, Inc., Raleigh and Charlotte, N. C., has been named an exclusive distributor of all Ka-Mo products. The dealer will cover the entire state.

Huber-Warco names dealer

The Fred Greenley Machinery Co., 1360 Wyoming Ave., Forty Fort, Pa., will carry motor graders, tandem rollers, 3-wheel rollers, and maintainers manufactured by Huber-Warco Co., Marion, Ohio. The dealer will cover northeastern Pennsylvania.

Parsons adds distributor

Equipment & Supplies, Inc., 540 Delwar Road, Pittsburgh, has been named to carry all models of the Trenchliner produced by the Parsons Co., division of Koehring Co., Newton, Iowa. The dealer will cover western Pennsylvania, four West Virginia counties, and two Maryland counties.

built tough...

US® AXLE SHAFTS

TAKE more abuse...
GIVE more work-use!

Actual torsion tests PROVE U.S. AXLE SHAFTS up to *5 times tougher*, thanks to our *extra* processing of finest alloy steels.

They take the *ab*USE of jolting rocky roads; heavy loads on steep grades; sharp off-level turns; sudden stops; dump-vibration. Exact duplicates of manufacturer's original equipment for replacements or custom designed, extra-tough U.S. AXLES give *unmatched* USE in every application.

Whether you maintain or make road-building machines, profit by the "give and take" you install with U. S. AXLES. In stock at your Jobber's . . . or quickly produced to your specs.

FREE on request: "CAUSES AND PREVENTION OF AXLE SHAFT FAILURES"

WRITE for FREE Valuable Brochure on U.S. Custom-Engineered Shafts . . . NOW!

"THE WORLD TURNS ON U. S. AXLES"

THE US AXLE COMPANY, INC.

Since 1920 • Pottstown, Pennsylvannia

For more facts, use Request Card at page 18 and circle No. 294

For more facts on insert, circle No. 29

Five Diamond T dealers

Five new dealers will carry the l of heavy-duty motor trucks man factured by the Diamond T Mo Truck Co., Chicago. The dealers a Idaho Equipment Co., Twin Fa Idaho; Motor Equipment Co., S Antonio, Texas; Paducah Truck Sa Paducah, Ky.; Ceranski Bus & Tru Sales, Schofield, Wis.; and J. Broek, Inc., Manchester, N. H.

Parker-Hannifin names

Jack Ogle & Co. has been a pointed a distributor for Parker dustrial tube and hose fittings a hydraulic accumulators manufactur by Parker-Hannifin Corp., Clevela The dealer has offices at 105 Or St., Seattle, Wash., and 2505 S. 11th Ave., Portland, Ore.

Yukon dealer for Hercules

Hercules Motors Corp., Can Ohio, has appointed Ed Jacobs M tors, White Horse, Yukon, Cana to service and handle Hercules' co plete line of engines and power un The dealer, located on the Al Highway, will complement the activ ties of the Hercules dealers in Da son Creek, B. C., and Anchora Alaska.

Lister-Blackstone dealer

Hubbs Engine Co., 141 Main S South Portland, Maine, has been a pointed a distributor by Lister-Blac stone, Inc., Long Island City, N. producer of diesel engines. The dea will cover the entire state.

Pacific Mercury names

E. M. Dunn & Associates, 505 Un versity Ave., Rochester, N. Y., ha been appointed a stocking distribut for Pacific Mercury Mfg. Corp., Va Nuys, Calif. The dealer will sto representative models of Pacific Me cury electric plants for constructio and general industrial use. A com plete parts and service departme will be maintained by Dunn.

Rupp names new officer

M. J. Frost has been named vi president and sales manager of Ru Equipment Corp., Buffalo, N. Y. former industrial sales supervisor the J. I. Case Corp., Frost will spe part of his time with the Roches N. Y., branch of Rupp.

White division news

The White Truck Division of T White Motor Co., Cleveland, has nounced that White and Auto branches and dealers in the U. S. Canada are authorized and equip to do initial inspection and warra work, plus service and maintena on Cummins diesel engines used White and Autocar trucks and tr tors.

The right design, the right steel, the right shape make *ESCO* Points and Adapters right for every digging condition.

The construction industry looks to

Electric Steel Foundry Co., PORTLAND, OREGON

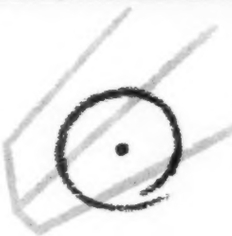
See reverse for shapes and size range

Here are the points to remember..

12M ALLOY STEEL

ESCO 12M Points are the toughest you can buy. Developed through years of research for the construction industry, cast *ESCO* 12M is carefully heat treated to produce the finest steel made for the severe shock and abrasion encountered by points and adapters.

RIGID QUALITY CONTROL TESTS ASSURE TOUGHNESS, HARDNESS



Every *ESCO* Point is Brinell tested to assure the exact degree of shock-absorbing toughness and abrasion-resisting hardness for longer digging life. Be sure to look for the Brinell mark on every *ESCO* Point you buy.

8 POINT SHAPES

You can select from eight different shapes to find the point that matches your digging conditions. *ESCO* Points are designed by bucket and excavation specialists who know how to achieve top digging performance. The self sharpening design of an *ESCO* Point makes it start sharp and stay sharp.

ESCO Points and Adapters for all digging equipment

Your local ESCO dealer can supply Points and Adapters for all your digging needs. By using ESCO Points and Adapters on all your equipment you can cut costs further by reducing your point inventory and consolidating purchases. Call your ESCO dealer today for details. He's listed in the yellow pages of your telephone directory. Or, write direct.

ESCO Point shapes . . . start sharp, stay sharp and last longer under any digging condition.

Electric Steel Foundry Company

2157 N.W. 25TH AVE. • PORTLAND 10, OREGON

MFG. PLANTS AT PORTLAND, ORE. AND DANVILLE, ILL.
Offices in Most Principal Cities
ESCO INTERNATIONAL, NEW YORK, N. Y. • IN CANADA ESCO

Stone & Webster forces cited for safety record

Construction crews of Stone & Webster Engineering Corp. working on the Yorktown (Va.) Power Station for Virginia Power & Light Co. have been awarded the William N. Patten Trophy in honor of their 1958 safety record.

The trophy is awarded annually to forces on the Stone & Webster project achieving the best record in terms of reducing frequency of accidents and amount of time lost. At the Yorktown project, where a total of 750,876 man-hours was worked during 1958, the frequency rate was 4.0. The general frequency rate for all Stone & Webster projects for 1958 for lost-time accidents per one million man-hours worked was 17.38.

The engineering firm has offices in Boston and New York City.

Highway department makes division changes

The Traffic Engineering Division of the Pennsylvania Department of Highways will report directly to the deputy secretary of highways for engineering. Previously, the head of the division was responsible to the assistant chief engineer in charge of maintenance.

Also, the sign shop is now the responsibility of the traffic division instead of the equipment division.

The highway department has appointed Felix D. Geissler director of electronic data processing. He has had considerable experience in highway engineering and data processing.

Earthmoving equipment highlight of A-C film

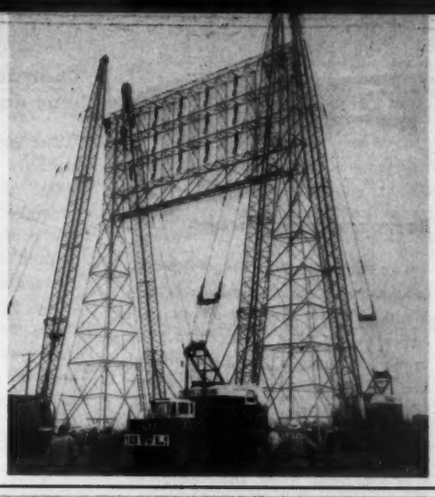
"Crawler Tractors in Action" presents the story of earthmoving equipment from its inception to the present time. The 20-minute 16-mm motion picture takes the viewer to job locations and graphically illustrates the many construction, earthmoving, and material-handling jobs the equipment can handle efficiently and economically.

The film is available on a loan basis from Allis-Chalmers Mfg. Co., Construction Machinery Division, Milwaukee, Wis., its branches and its dealers.

Report on Russian work in prestressed concrete

"Concrete and Prestressed Concrete Engineering in the U. S. S. R." is a report of an American delegation of concrete specialists who visited Russia to study recent Soviet research and development in that field. Chapters cover general observations; research; design and materials; production; construction; meetings and conferences; and education. A list of Russian publications given to the delegation during the tour concludes the bulletin.

Copies of the report are available from the Portland Cement Association, 33 W. Grand Ave., Chicago 10, Ill.



A TRANSMISSION TOWER IS MOVED 71 feet by four American 110-foot cranes on Cook carries to make room for the new Long Beach-San Diego Freeway. Owl Truck & Construction Co., Compton, Calif., handled the 18-line, 95-foot tower. During the move, Southern California Edison kept most of the high-tension transmission lines hot to furnish power to the Long Beach-Compton area.

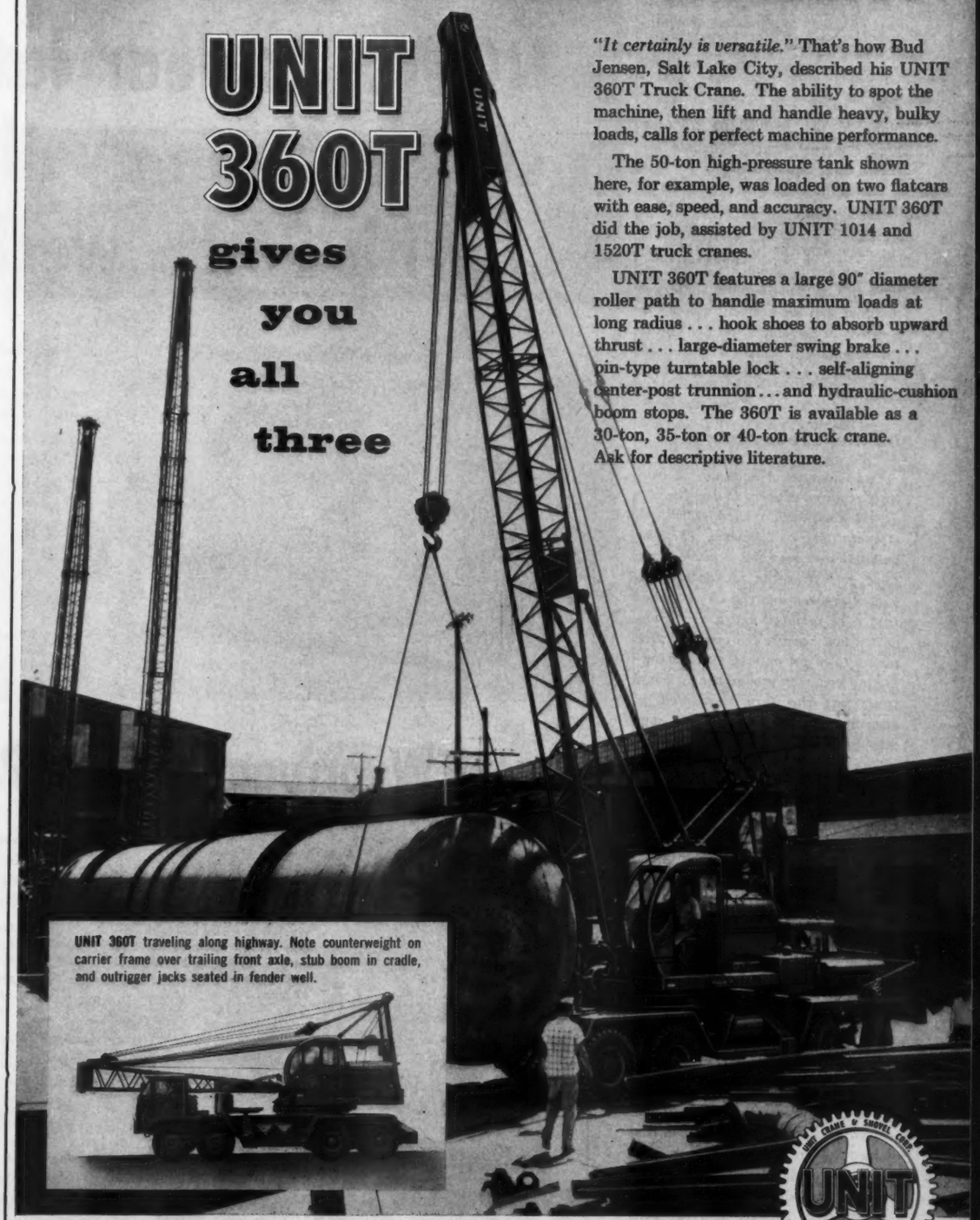
CAPACITY! POWER! MOBILITY!

UNIT 360T gives you all three

"*It certainly is versatile.*" That's how Bud Jensen, Salt Lake City, described his UNIT 360T Truck Crane. The ability to spot the machine, then lift and handle heavy, bulky loads, calls for perfect machine performance.

The 50-ton high-pressure tank shown here, for example, was loaded on two flatcars with ease, speed, and accuracy. UNIT 360T did the job, assisted by UNIT 1014 and 1520T truck cranes.

UNIT 360T features a large 90" diameter roller path to handle maximum loads at long radius . . . hook shoes to absorb upward thrust . . . large-diameter swing brake . . . pin-type turntable lock . . . self-aligning center-post trunnion . . . and hydraulic-cushion boom stops. The 360T is available as a 30-ton, 35-ton or 40-ton truck crane. Ask for descriptive literature.



UNIT 360T traveling along highway. Note counterweight on carrier frame over trailing front axle, stub boom in cradle, and outrigger jacks seated in fender well.

UNIT CRANE AND SHOVEL CORP.

6309 West Burnham Street, Milwaukee 19, Wisconsin, U. S. A.

For more facts, use Request Card at page 18 and circle No. 296

A9-5028

Avoid legal pitfalls

Borrowed sling broke

THE PROBLEM: *On a school building job a subcontractor's employee needed a rope sling to be used on an outrigger in lifting a heavy door. The prime contractor's superintendent said, "You will find a rope in our other tool shanty." The subcontractor's employee obtained a sling, tested and inspected it, and used it. As the door was being lifted, the rope broke and the employee was injured by the falling door. Was the prime contractor liable under a provision of the New York labor law that makes one liable for injury to another whom he has "directed" to use defective equipment, even though the injured man was not in his general employment?*

THE ANSWER: No. (Mandes v. Caristo Construction Corp., 171 N. Y. Supp. 2d 494, decided by the New York Supreme Court, Appellate Division, First Department.)

The prime contractor could not be deemed to have directed that the sling be used on the subcontract work. But the court said that, even if the contrary were true, the general contractor was not liable because there was no proof that the accident was due to a defect in the sling, and not due to the manner in which it was used, particularly since the break was a clean one.

Deficient ready-mix

THE PROBLEM: *A building-job contract required delivery to a contractor of all ready-mix concrete with a strength test of 2,500 psi. The city building code required a test of only 2,000 psi. After the foundation was laid, it cracked and the city required that it be removed and a new foundation laid because the material used tested 1,700 psi or less. On the conflicting evidence produced at a court trial, was the jury warranted in awarding damages against the supplier of the material?*

THE ANSWER: Yes. (Fyfe Cement & Gravel Co. v. Mathis, 310 S. W. 2d 770, decided by the Texas Court of Civil Appeals, Amarillo.)

The court left undecided the question whether the ready-mix company would have been liable had the material tested 2,000 psi and thereby complied with the city building code.

One expert testified that the mixture was deficient in cement, and another said that it was deficient in that respect or because the cement was dead. On the other hand, witnesses for the company testified that the ingredients had been properly mixed by mechanical means and according to chart. It was for the jury to decide whether the contractor had sustained the burden of proving that the mixture was deficient. But the court said there might have been difficulty in assessing damages had the concrete met the building-code test of strength.

Contractor's trespass was not accident

THE PROBLEM: *An insurance policy protected a contractor against liability for "injury to or destruction of property . . . caused by accident." The contractor undertook clearance of land next to a golf course and directed a bulldozer operator to clear up to, but not beyond, certain iron stakes. The operator, mistaking other stakes as the boundary, trespassed upon the golf grounds. The golf club collected damages from the contractor. Was the contractor entitled to reimbursement under the policy?*

THE ANSWER: No. (Thomason v. United States Fidelity & Guaranty Co., 248 Fed. 2d 417, decided by the United States Court of Appeals, Fifth Circuit, upholding a decision by the United States District Court for Alabama, Middle District.)

A majority of the judges of the Court of Appeals reasoned that where acts are voluntary and intentional, and injury is the natural result, the result cannot be regarded as accidental.

But dissenting Judge Rives reasoned that the damage to the golf club's property was just as accidental as if a hunter were shot on being mistaken for a deer or if a motori drove upon a newly paved approa to private property, mistaking it fo part of the highway.

Rights of fireman hurt on job site

THE PROBLEM: *A multiple-apar ment-house project under constru tion involved a prime contractor, sewer subcontractor, and a plumbi subcontractor. Construction of sewer manhole near one of the buil ings was almost completed but ha not been covered. A fire-departme crew was called at night to fight*

NOW...a year later...sam 95 still leads in availability ...with 96.1% working reco

—for Southern California Edison Co., Los Angeles, Calif.

A year later, in 1959, still meeting and machine-mauling High Sierra rock-hauling cond on Mammoth Pool Hydroelectric Project, for So California Edison—the same 10-unit Internatio Payhauler fleet is still turning in this excellent of availability.

With 2,500 to 2,700 working hours clocked unit of the fleet, the 10 Payhaulers delivered 96. ability in a recent measured month. The Pa fleet never lost a day due to mechanical failu formance like this has helped advance job-co date substantially ahead of schedule!

Southern California Edison Company credits their results partly to strong-built, easy-to-maintain machines a methodical preventive maintenance program. Working two Payhauler units highballing rock fill to the dam site maintaining record high availability!

...NEW corrugated-body Payhauler mod spe

New "95" Payhauler gains 3 tons in capacity, plus an additional 40 diesel hp.—with new corrugated body design and new 375-hp. turbocharged International DT-817 diesel engine.

See those exclusive, rock-ribbed body c tions! International applies this exclusive st multiplying principle to reduce the body-we new Payhauler models with these results:

- **New "95" Payhauler loses 2½ tons power-wasting dead-weight; gives 3 ex tons of payload capacity!**
- **New "65" Payhauler sheds 5,000 pou of useless "ballast"; gains a whole ton new hauling capacity!**

And both these weight-streamlined Payhaule new International diesel power to highball th payloads 14% faster than the previous model new Payhauler models have the power-to-weig to out-cycle even lower capacity rigs.

Get the proof that new Payhauler mo deliver and keep delivering you the lowest moving costs in the off-highway hauling ma your International Construction Equipment D tor for a demonstration!

fire in one of the buildings. The duties of plaintiff, a fireman, took him near the excavation, and because of the darkness he did not see it and fell into it. He sued all three contractors. Were any of them liable in damages?

THE ANSWER: No. (Baxley v. Williams Construction Co., 106 S.E. 2d 799, decided by the Georgia Court of Appeals.)

The court decided that the general contractor and sewer contractor were not liable on a theory that they should have foreseen need for warnings or safeguards during nighttime. Even if the plumbing contractor negligently caused the fire in using an open torch at some distance from the excavation, that negligence could not be regarded as the direct cause of the fireman's injuries. Neither the general contractor nor the subcontractors could be regarded as having willfully maintained a man trap.

Illegal picketing

THE PROBLEM: *No dispute existed between a Wisconsin contractor and his nonunion employees. Allegedly, defendant local carpenters' union caused the contractor's job sites to be picketed, thereby inducing subcontractors' union employees and material deliverymen to refuse to cross the picket line. No interstate angles of his business were involved, except that he bought about $50,000 worth of materials outside the state and similar purchases were made by his subcontractors. The picketing would be subject to injunction under state law if the federal statutes did not afford an exclusive legal remedy. Were the latter statutes exclusive?*

THE ANSWER: Yes. (Hehl v. Chippewa & Red Cedar Valley Carpenters' District Council, 91 N. W. 2d 226, decided by the Wisconsin Supreme Court.)

The court reasoned that the National Labor Relations Board has exclusive jurisdiction when substantial interstate commerce is involved.

"Plaintiff buys and receives materials which originate outside the state and move into it. Even as to the materials which physically reach the state before he buys them, his desire to buy and ability to use them helps create the market which causes the materials to move into the state. Continued picketing would affect his desire and ability to buy, and would affect suppliers and other contractors delivering to and working at the same site. They also help to provide a market for the materials they need. It seems clear that the picketing has some effect on interstate commerce, and the only other question is whether that effect is so slight as to be disregarded."

The court recognized that the federal law would not have debarred plaintiff from suing in the Wisconsin state courts for damages resulting from illegal picketing. But the court said that federal jurisdiction was limited to the granting of an injunction. It was also recognized that the state courts would have exclusive jurisdiction over a suit for injunction where interstate commerce is insignificantly involved.

One of the justices of the Supreme Court dissented. He thought that the state courts did have jurisdiction in the case. First, because it was the fixed policy of the National Labor Relations Board not to accept jurisdiction over disputes of this minor character. His second reason: If the state courts could take jurisdiction of a suit for damages for illegal interference with the performance by plaintiff of his contracts, the courts, by the same token, would be entitled to enjoin such interference.

Changed-conditions clause

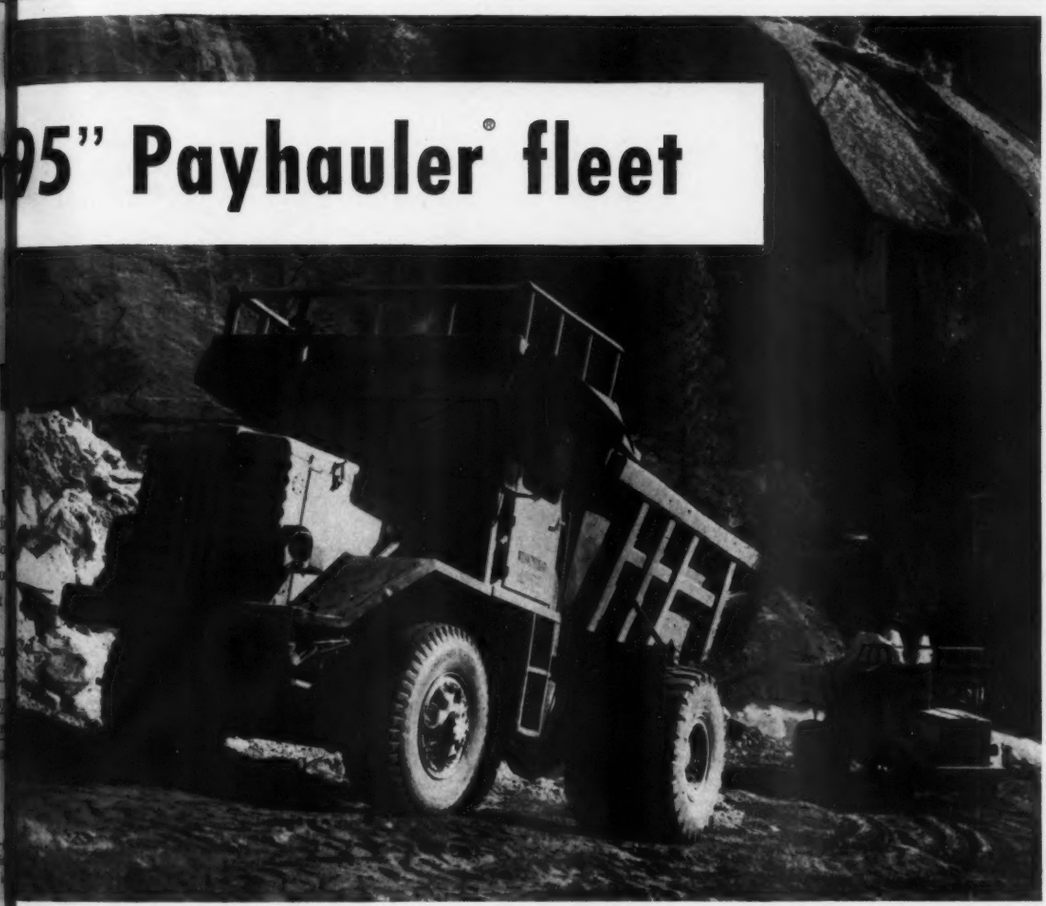
THE PROBLEM: *Bidding specifications governing construction of bridge piers and piles on a federal project did not allow enough time for bidders to fully comply with a standard provision requiring bidders to examine the site. Another standard clause stated that data furnished bidders was informative only and not a warranty or representation as to actual conditions. Subsurface material conditions differed substantially, entailing increased cost of construction. Was the successful bidder entitled to extra pay under the standard "changed-conditions" clause embodied in the contract?*

THE ANSWER: Yes. (Felhaber Corp. v. United States, 151 Fed. Supp. 817, decided by the United States Court of Claims.)

The court reasoned that "it would

Edited by A. L. H. STREET
Attorney-at-Law

These brief extracts of court decisions may aid you. Local ordinances or state laws may alter conditions in your community. If in doubt consult your own attorney.



speed bigger loads...up to 14% faster!

New "65" Payhauler, the only 19-tonner, features International's exclusive new corrugated body principle. Powered by the naturally aspirated new 250-hp. International D-817 diesel engine.

International® Construction Equipment

International Harvester Co.
180 N. Michigan Ave., Chicago 1, Ill.

A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors... Self-Propelled Scrapers and Bottom-Dump Wagons... Crawler and Rubber-Tired Loaders... Off-Highway Haulers... Diesel and Carbureted Engines... Motor Trucks... Farm Tractors and Equipment.

←For more facts, circle No. 297

have been a virtual impossibility for any bidder to make its own borings, analyze them, compute, prepare, and submit its bid after the invitation for bids was first published, since there was only a 40-day interval between that publication and the opening of the bids. There were 32 piers and two abutments to be constructed. Borings in two to four places would be necessary at each location.

"Plaintiff had a right to rely on the government's specifications and drawings, and the government is bound by any assertions made therein, notwithstanding the fact that it was stated that that data would be for information only. This court has repeatedly held that the specifications cannot alter the effect of the specific language of the changed-conditions section of the contract. Plaintiff should, therefore, be reimbursed to the extent that the changed conditions caused it to incur expenditures in excess of those which would have been incurred had the subsurface been as reported by the specifications."

Valuing lessee's right in sand-deposit suit

THE PROBLEM: *A state condemned land upon which there was a leasehold interest for the production of sand. The lease was valuable only because of its sand yield. Was the lessee entitled to an award taking into account the income currently derived from disposal of sand?*

THE ANSWER: Yes. (Eisenring v. Kansas Turnpike Authority, 332 Pac. 2d 539, decided by the Kansas Supreme Court.)

The court said that in a case like this there is no market of value, because of lack of proof on comparable sales of leasehold interests in sand. But this fact does not prevent the owner of the lease from proving the value of the property for his special purpose, if the special use or purpose to which the property is adapted is real and founded upon proved facts, not merely conjecture.

Quarry blasting damage

THE PROBLEM: *A home owner sued the owners of a quarry for property damage allegedly due to defendant's blasting operations, 3,900 feet away. On the evidence presented, did a jury properly award damages?*

THE ANSWER: Yes. (Taylor v. Sidwell, 155 N.E. 2d 726, decided by the Ohio Court of Common Pleas, Muskingum County.)

The court decided that evidence offered by defendants—on the result of blasting experiments conducted two years after the damage had been caused—had no legitimate bearing because of changes in the condition of the quarry in the meantime. Furthermore, the experiments were conducted at least 1,000 feet farther away from property than the blasting that caused the damage.

Haulage subcontractor not liable for injury

THE PROBLEM: *A child was struck by a truck hauling gravel from a pit to a highway construction site. The truck was owned by a haulage contractor, who hired and paid the driver. The highway contractor merely paid the truck owner a per-load price for the haulage and exercised no control over the driver as to his hours of work, route of travel, or otherwise, except for unloading at the construction site. Was the highway contractor liable for the injury to the child?*

THE ANSWER: No. (Smith v. Crotts, 336 Pac. 2d 1102, decided by the Oklahoma Supreme Court.)

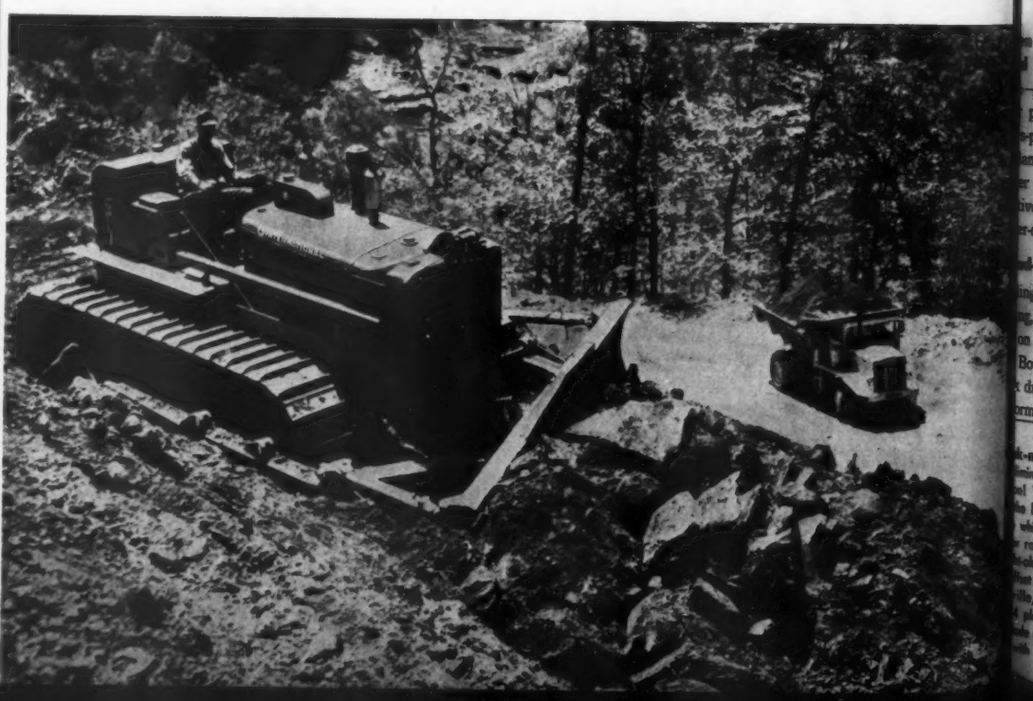
Motorcycle, grader crash

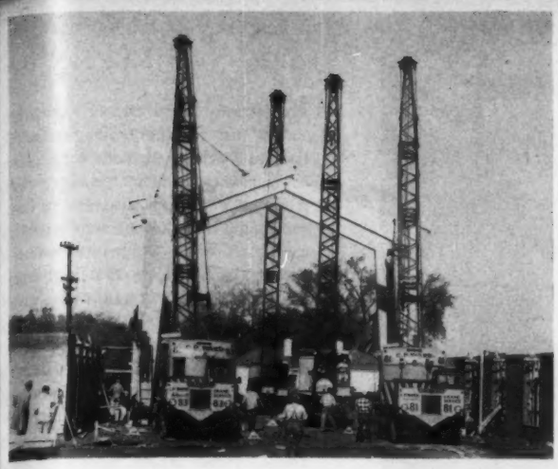
THE PROBLEM: *During highway construction, one-way traffic was maintained under flagmen's direction, but one flagman—controlling northerly flow of traffic—was not on the job. Traffic was proceeding south on the west side of the road. The east side of the road was blocked by construction machinery, partly obscured by a crest in the highway. A motorcyclist was traveling at 40 or 45 mph behind an automobile. He first saw a grader in his lane when it was 150 to 200 feet away, and he could have then stopped his motorcycle. Traveling at 15 mph, within 6 or 7 feet of the grader, the motorcyclist suddenly turned to the left, collided with the grader, and was seriously injured. Despite efforts of the contractor to have traffic properly flagged, was the motorcyclist's negligence a bar to collection of the damages?*

THE ANSWER: Yes. (Carpenter v. Scanlon, 153 N.E. 2d 448, decided by the Ohio Court of Appeals, Summit County.)

How TD-24's give you bigger "profit-turns"

with full-time "live tracte





PRECAST-CONCRETE ARCHES, held in place by four Lorain Moto-Cranes, are bolted together during the construction of St. Ambrose Church in Rochester, N. Y. Twelve 35-foot-high arches, each weighing 24,000 pounds, were lifted and held in place by the cranes for this project which was handled by C. P. Ward, Inc., of Rochester.

Even blading shot-rock 'round the "corner"—where clutch-steered king-sized crawlers so often spill the "pay" part of the load—the International TD-24 makes full-profit passes! View shows one of two TD-24's at work on U.S. 60 north of Globe, Arizona, for Flickinger Bros. Contracting Co.

...steering!

...n your International TD-24 operators can ...d you an enormous paydirt dividend—as big as ...—compared to other big crawlers that "half kill" ... power on turns. The big difference: exclusive, ...-proven TD-24 Planet-Power steering!

...anet-Power steering gives you full-time "live" ... on both TD-24 tracks—full-time separate and ...ive control of each track! And full-time on-the-go ...-shifting!

...d-track drag" is eliminated

...ing 'round curves, benching, bank-cutting or side-..., the TD-24's dozer keeps cutting—keeps pay-...on the move—doesn't spill your extra-profit mar-...Both tracks keep pulling. Load-limiting "dead-... drag" is eliminated. You get full-bite, full-blade ...ormance where other rigs only "nibble"!

Hi-Lo power-shifting, too!

And Planet-Power steering gives you famous Hi-Lo range power-shifting. You instantly adjust speed to the load without stopping or declutching, going forward or in reverse, simply by flicking steering levers into the proper range—with 2-finger ease. You clip vital minutes from shuttle-dozing cycles!

At the end of the pass, simply press the TD-24's decelerator for quick-shifting to fast reverse; zip back for another full-blade pass. Hi-Lo planetary levers give two separate speeds in any forward or reverse gear selected!

Prove what it means in profits to get Planet-Power steering paydirt dividends of up to 50%. Discover the satisfaction of beating anything else on tracks—with fingertip ease. See your International Construction Equipment Distributor for a TD-24 demonstration!

...k-nosing;" rear-end sluеing, ...minated without loss of speed or ...al TD-24 operator simply oper-...the load-side track in high speed ... while keeping the outside track ... range. Result: full-capacity, ...-ahead performance, despite the ...ton load! Owner J. C. Critcher, ...ville, North Carolina, reports: ... planetary Hi-Lo steering keeps ...ade digging more yardage in less ...with minimum side slip."

A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors...Self-Propelled Scrapers and Bottom-Dump Wagons...Crawler and Rubber-Tired Loaders...Off-Highway Haulers...Diesel and Carbureted Engines...Motor Trucks...Farm Tractors and Equipment.

International® Construction Equipment

International Harvester Co., 180 N. Michigan Avenue, Chicago 1, Illinois

Convention calendar

July 25-29 National Association of County Officials

Twenty-third Annual Conference and Products Exhibit, Sheraton-Cadillac and Statler-Hilton Hotels, Detroit, Mich. Bernard F. Hillenbrand, executive director, NACO, 1001 Connecticut Ave. N. W., Washington 6, D. C.

August 17-21 National Shade Tree Conference

Conference, Hotel Statler, Detroit, Mich. L. C. Chadwick, secretary-treasurer, NSTC, Department of Horticulture, Ohio State University, Columbus, Ohio.

September 20-23 American Public Works Association

Meeting, Olympic Hotel, Seattle, Wash. Robert D. Bugher, executive director, APWA, 1313 E. 60th St., Chicago 37, Ill.

September 21-25 International Council for Building Research, Studies, and Documentation

International Congress, Rotterdam, The Netherlands. The Congress Secretariat, ICBRSD, c/o Bouwcentrum, Postbox 299, Rotterdam, The Netherlands.

September 21-26 International Road Congress

Eleventh World Meeting of Permanent International Association of Road Congresses and Road Show, Copacabana Palace Hotel, Rio de Janeiro, Brazil. Eng. Luiz de Mattos, general secretary, IRC, Avenida Presidente Vargas, 522, 13.0 andar, Rio de Janeiro, Brazil.

September 24-26 New York State County Highway Superintendents Association

Summer Meeting, Lake Placid Club, Lake Placid, N. Y. Harry R. Mason, secretary, NYSCHSA, Fonda, N. Y.

September 28-October 1 American Welding Society

Fall Meeting, Sheraton-Cadillac Hotel, Detroit, Mich. AWS, 33 W. 39th St., New York 18, N. Y.

September 29-October 1 National Association of Corrosion Engineers

Western Region Conference, Bakersfield Inn, Bakersfield, Calif. T. J. Hull, executive secretary, NACE, 1061 M & M Bldg., Houston 2, Texas.

September 30-October 2 Producers Council, Inc.

Meeting, Chase Park Plaza, St. Louis, Mo. PCI, 2029 K St. N. W., Washington 6, D. C.

HRB report on water and its flow in soils

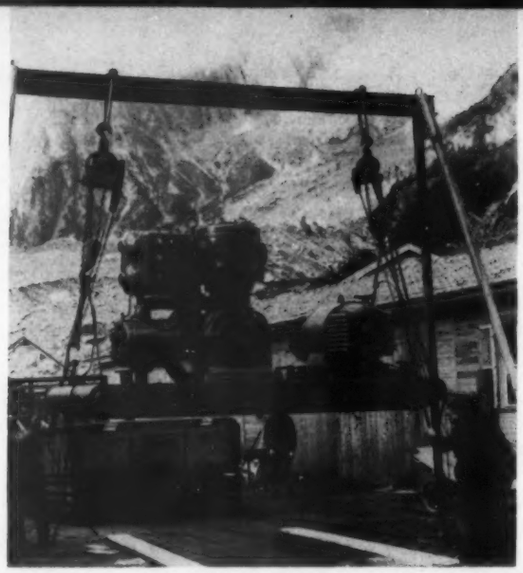
Special Report 40, "Water and Its Conduction in Soils," is available for $6 from the Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. The book is a report on an international symposium. Some of the chapters discuss properties of water substance; organization of water on clay mineral surfaces and its implications for the properties of clay-water systems; movement and equilibrium of water in soil systems as affected by soil-water forces.

Also covered are the correlation of heat and moisture properties of soils; some concepts pertaining to the freezing soil systems; effect of water movement on soil; movement and distribution of water in soil in relation to highway design and performance; field studies on subgrade moisture conditions; and flow of water in hardened portland-cement paste.

Graphs, tables, charts, formulas, and pictures abound in the 338-page book. A list of references concludes each chapter.

←For more facts, circle No. 298

Tunnel men take on Mont Blanc



A skid-mounted Atlas Copco AR-4 air compressor, one of four being used on the Italian side of the Mont Blanc tunnel project, arrives at the job site. A battery of compressors will deliver 3,530 cfm to operate rock drills and other equipment.

Ice-capped Mont Blanc, towering 15,781 feet on the border between Italy and France, is being conquered by construction men. Tunnel crews from both nations are driving toward each other in the solid granite core of the peak. When their work is finished, sometime in 1961, a 7-mile vehicular tunnel will link France and Italy.

Work on the Italian side is being done by Societa Italiana per Condotte d'Acqua, contractors. About 4 miles of the tunnel are being driven into the Alpine mountain from Entreves, Italy, which is 4,531 feet above sea level.

On Italian side

According to geological surveys, the first 3,000 to 5,000 feet of the Italian end of the tunnel will go through calcareous schist. This will enable the contractors to test and finalize drilling patterns before reaching the granite core of Mont Blanc.

The drilling program will consist of either three 8-hour shifts per day, with one round fired during each shift, or four 6-hour shifts, each with one round, depending upon conditions encountered inside the mountain.

The Italian contractors are using from 15 to 18 Atlas Copco Tiger rock drills to start tunneling operations. Sandvik Coromant tungsten carbide-tipped drill steels are teamed with the Atlas Copco drills. All compressed air for pneumatic equipment on the Italian side is being supplied by a battery of four Atlas Copco AR-4 air compressors delivering a total of 3,530 cfm.

French side

The other 3-mile stretch of the tube will be driven into Mont Blanc from a starting point at Chamonix, France, which is 4,179 feet above sea level.

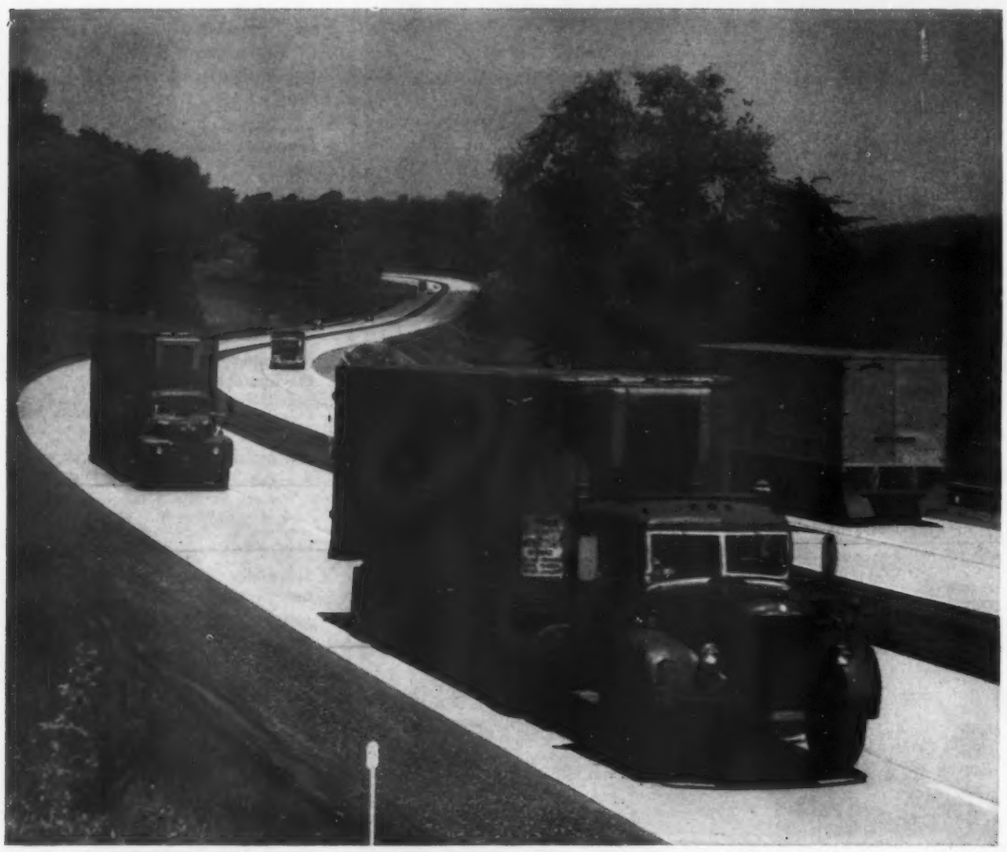
The tunnel will have a 23-foot-wide reinforced-concrete roadway, laid 11 feet above the tunnel's actual base. On either side of the road will be a 27½-inch-wide walkway that will be 8 inches above the road level.

At 1,000-foot intervals there will be emergency-repair areas, 9.84 feet wide, 65.62 feet long, and 14.76 feet high. These will be staggered on either side of the roadway. Opposite each of these areas will be 16.4×26.25-foot chambers to facilitate turning.

Time-saving route

When the $32,750,000 tunnel is completed in 1961, it will give motorists the first year-round trans-western Alpine route in history. Existing surface roads cross the western Alps at altitudes of more than 6,500 feet, and these are normally open to traffic only about 6 months of the year.

The tunnel will cut nearly 200 miles off the highway route between Paris and Milan and more than 135 miles from the route linking Turin and Paris. The tunnel will be administered for a period of 70 years by an organization formed of the Italian



Only CONCRETE roads automatically provide 100% added strength for lasting load-bearing ability!

Laid flat, concrete stays flat. Traffic rides smooth and steady . . . travels fast and far. Modern concrete is the *engineered* pavement . . . designed mathematically to specific wheel load requirements. When you work to accepted design practice, you get a pavement that can support twice the rated axle load . . . a 100% margin of strength.

That's why concrete will stand up not only to rated axle loads in *normal* volume, but even in *peak* volume, with such loads running bumper to bumper . . . and last an expected 50 years and more. Reserve strength like that saves taxes and complaints. It's a big reason why upkeep costs will run as much as 60% lower than for flexible pavement.

Concrete often saves money in other ways, too. For example, on the Indiana Toll Road, engineers drew up designs for both types of pavement, proved concrete would save $9,740,000.

And truckers are the experts who can tell you that today's concrete means gentle treatment of cargoes. It's the flattest, smoothest-riding pavement there is. Small wonder concrete is the preferred pavement for the Interstate System and other heavy-duty highways.

PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of concrete

For more facts, use Request Card at page 18 and circle No. 299

and French companies responsible for the project. At the end of that period, it will become the joint property of France and Italy.

An electrical system, complete with standby reserve equipment, will provide illumination for the full length of the tunnel. Vehicles will use only parking lights on trips through the mountain.

Two pipelines beneath the roadway will carry new telephone and telegraph lines between France and Italy. Provisions also will be made for the future installation of electrical cables and pipelines running through the tunnel.

Small niches, equipped with emergency telephones connected to both tunnel portals, will be cut alongside the roadway at 330-foot intervals.

Authorities estimate that approximately 1½ million passengers and 75,000 tons of freight will travel through the tunnel each year in some 264,000 automobiles, 24,000 buses, 49,000 motorbikes, and 15,000 trucks. Vehicular speed will range from 15 to 25 mph. The tunnel, carrying traffic at the rate of about 250 vehicles per hour, will be equipped with an automatically controlled ventilating system operating in independent sections along the length of the tunnel.

THE END

Electronic computer helps design prestressed beams

With the aid of an electronic computer, the firm of Lockwood, Kessler & Bartlett, Inc., Syosset, N. Y., prepares graphical charts, which enable them to select rapidly the appropriate section for a given bridge geometry and loading. The firm has also developed a program that produces all the additional data necessary to complete the design of post-tensioned and prestressed-concrete beams used as stringers for highway bridges.

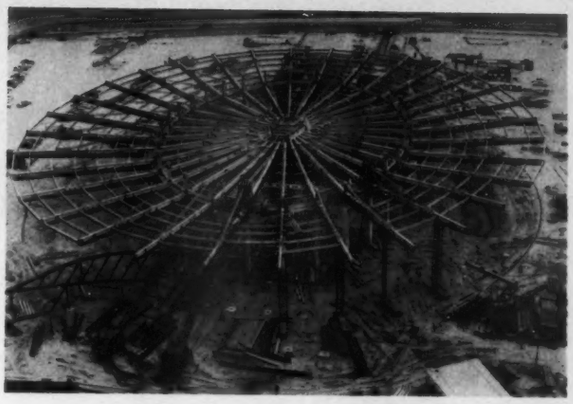
With the new design procedure, the proper section is selected from charts that provide information for selection of standard beams. No prior knowledge of the magnitude and location of the prestressing force is required. With a minimum of preparation, the beam is then designed by the computer.

This method is also applicable to building construction, the firm points out, when modified to reflect the different loads and stresses to be handled.

AISI elects officers

The current officers of the American Iron and Steel Institute have been re-elected, and C. M. White has been elected a vice president. The slate of officers includes Benjamin F. Fairless, president; Max D. Howell, executive vice president; William M. Akin and Arthur B. Homer, vice presidents; George S. Rose, secretary; E. O. Sommer, Jr., treasurer; Charles M. Parker, assistant vice president; and F. A. Coombs, assistant secretary.

For more facts, circle No. 300→



THIS 2,000-TON STEEL WHEEL is the roof skeleton for Pan American Airways' new passenger terminal at New York International Airport. The roof will spread out more than 100 feet on all sides of a 3-story building. Jet airliners will nose under it to protect travelers from rain, snow, or wind. Lehigh Structural Steel Co., Allentown, Pa., has the contract for this project.

TD-24 king-sized drawbar pull cables down a building.

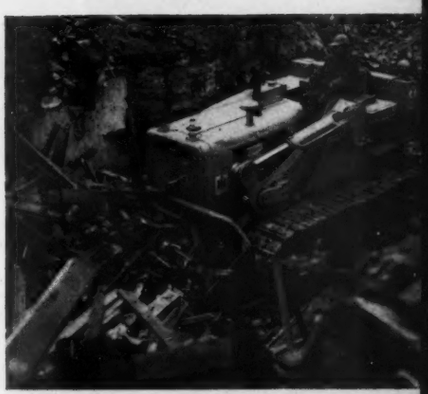
TD-15 Four-in-One keeps 17 trucks "cycling"... on slum clearance project!

Mass-production clearance of slum area buildings, at minimum cost, is a profitable reality—for Richard E. Harder Contracting Company, St. Louis, Missouri.

The contractor cables the old buildings down with an International TD-24—mauls them to bits with cranes and the "24." Then he "turns" the International Drott TD-15 Four-in-One loose on them—and the debris-loaded trucks (17 of them) start "cycling!"

Harder Contracting Company began loading out with a Skid-Shovel bucket—soon switched to the 4-in-1 to get capacity-boosting, money-saving multi-machine utility! Now the TD-15 Four-in-One, under one-man control, doubles for a whole spread of "big-ticket" rigs!

It gets 115 heavy-duty hp. from its smooth-running 6-cylinder diesel engine—to "push home" the bucket in "solidified" debris. It's got 39,200 lbs. of pry-over-shoe break-out action to excavate "anchored" materials. And the operator simply moves the "machine-selector" lever to also get clamshell action to "clamp" on to hard-to-handle, wood-and-masonry debris—plus versatile dozer and "carry-type scraper" performance!



Then the TD-15 "horses" in and heaps bucket.

See what it means in profit-earning capacity to switch machine actions instead of machines—to handle materials and conditions that frustrate old-style "single-action" rigs! Prove that exclusive, shock-swallowing Hydro-Spring adds operating comfort—prolongs equipment life. See your International Drott Distributor for a 4-in-1 demonstration!

Exclusive 4-in-1 clamshell bottom-dumping, quickly heaploads a big truck. Fast TD-15 Shuttle-Bar forward-reverse control speeds 4-in-1 loading cycles!

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL® DROTT

Names in the news

Kiewit wins safety award

Peter Kiewit Sons' Co. of Canada, Ltd., has won the 1958 "Titan's Trophy" awarded by the Workmen's Compensation Board in British Columbia. The unusual trophy is made from a large block of granite weighing 125 pounds.

The safety award, offered for annual competition, is based on a combined mark for frequency and for activity in accident prevention work. For the 17 major companies competing this year, 100,000 man-hours was the minimum exposure.

Frank A. Marston, official nominee for president of the American Society of Civil Engineers.

Marston official nominee for ASCE president

Frank A. Marston has been named the official nominee for president of the American Society of Civil Engineers for 1959–60. Election will be by mail ballot of the more than 42,000 members of the society, and the new president will take office at the October convention in Washington, D. C. He will replace the current president, Francis S. Friel.

Marston is a partner in the Boston engineering firm of Metcalf & Eddy. He is a former ASCE vice president and is a life member.

Asphalt Institute names

Herbert C. Higgins has been appointed district engineer for the states of Washington and Alaska by The Asphalt Institute. Prior to his new appointment, Higgins was engineer of toll facilities for the Washington State Highway Department. He will now serve under the supervision of Pacific Coast Division managing engineer B. A. Vallerga, with headquarters at Berkeley, Calif.

The institute has moved its Seattle district office to Olympia, Wash.

Manse R. Sharp, Jr., has joined the institute as assistant engineer in the Dallas office. He will work under the supervision of Hugh A. Wallace, division managing engineer of the Southwest Division, which encompasses Texas, New Mexico, Oklahoma, and Arkansas.

Syracuse University honors D. B. Steinman

Dr. David B. Steinman received an honorary degree of Doctor of Engineering at Syracuse University's commencement early last month. Dr. Steinman has been the designing or consulting engineer in the construction of more than 440 bridges on five continents, including the $100 million Mackinac Bridge in Michigan.

Corps promotes officer

Col. Urban W. Boresch has been promoted to the rank of full colonel. He is executive officer of the Detroit district of the U. S. Army Corps of Engineers.

For more facts on Insert, circle No. 3

Moles elects officers

Mansell L. MacLean has be elected president of The Moles, an a sociation of heavy-construction e gineers and executives. MacLean, w succeeds Howard A. Collins, is pre dent of MacLean-Grove & Co., In New York City.

Mansell L. MacLean, president of The Moles.

The new slate of officers also in cludes Chester W. Cambell, first vi president; Harry T. Immerman, se ond vice president; Eugene G. Ra treasurer; Eugene F. Moran, Jr., se retary; and Robert S. Mayo, se geant at arms.

Elected to 3-year trusteeships a George F. Ferris, M. C. McGoug Charles B. Molineaux, and John Walsh.

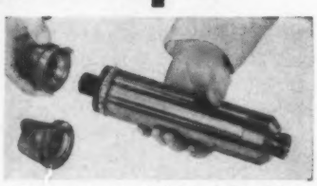
MacLean, the new president, ha received an honorary Doctor of Civi Laws degree from his alma mate Acadia University in Wolfville, N. S. Canada. He has an LL.B. degree fro Brooklyn Law School and is a mem ber of the bar of New York State, a well as a licensed professional engi neer in that state.

Perlite Institute names director

The Perlite Institute, internationa trade association of perlite pro ducers, has named Marve Narra more managing director to succee Richard J. O'Heir, who resigned Narramore was previously assistan secretary-treasurer of The Val Manufacturers Association.

Only Viber offers you Vibrator heads with Interchangeable rubber or steel tips!

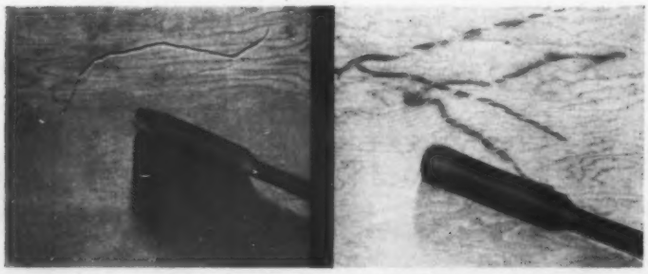
Eliminate expensive grinding...insure a perfect finish on exposed concrete surfaces...make costly forms last longer...extend the life of vibrator housings!



Tips screw on or off vibrator head easily, quickly...may be interchanged as required, replaced when worn.

YOU MAKE MORE PROFIT with Viber Vibrators! Viber replaceable rubber tips end damage to concrete forms and make forms last longer. By eliminating scarring of form faces, Viber rubber-tipped vibrators put an end to grinding and hand finishing of blemishes caused by gouged forms. Vibrator housings last longer because most wear occurs at the tip, which is replaceable.

TAKE YOUR CHOICE! Many contractors prefer steel-tipped vibrators for very harsh concrete with large aggregate, but the majority of Viber owners use rubber-tipped heads on *all* jobs. Whatever your preference, Viber (and ONLY Viber) gives you a choice of rubber OR steel–and lets you interchange them at will. WHY NOT WRITE TODAY for the whole story!



Steel tipped vibrator heads often cause deep gouges and scars on form faces (left), producing blemishes on exposed concrete surfaces and requiring expensive grinding and hand finishing. Rubber-tipped heads don't damage form faces any more than a rubber eraser (right), extend form life, produce smooth finish concrete, eliminate hand finishing.

Viber Company, 726 South Flower Street
Burbank 22
California

VIBER CO

VIBRATORS

Pioneers and leaders in the manufacture of vibrators.

For more facts, use Request Card at page 18 and circle No. 301

There's a right time for down-time!

Plan maintenance with **Hobbs HOUR METERS**

- Get the information you need for on-time performance of planned maintenance — for superior service and maximum equipment use.
- Set up a really sound basis for rental and leased equipment.
- Obtain operating time in hours and minutes — at a glance!
- True electric timing instruments — NOT revolution counters.

FOR DIRECT OR ALTERNATING CURRENT

Hobbs d-c Hour Meter tells when lubrication and other service functions are due on any equipment powered by an internal combustion engine, gasoline or diesel. Hobbs a-c Hour Meter has a wide range of applications on any equipment powered by line current.

Distributors in Principal Cities
WRITE FOR CATALOG 600

Symbol of SW Excellence

John W. Hobbs Corporation
A DIVISION OF STEWART-WARNER CORPORATION
2067 YALE BLVD., SPRINGFIELD, ILLINOIS

For more facts, use Request Card at page 18 and circle No. 302

WORK-ABILITY

EUCLID TC-12

...WAY AHEAD OF ANY OTHER CRAWLER!

5 BASIC ADVANTAGES
of this Twin-Power Tractor give you a Better Return on Investment . . .

TC-12

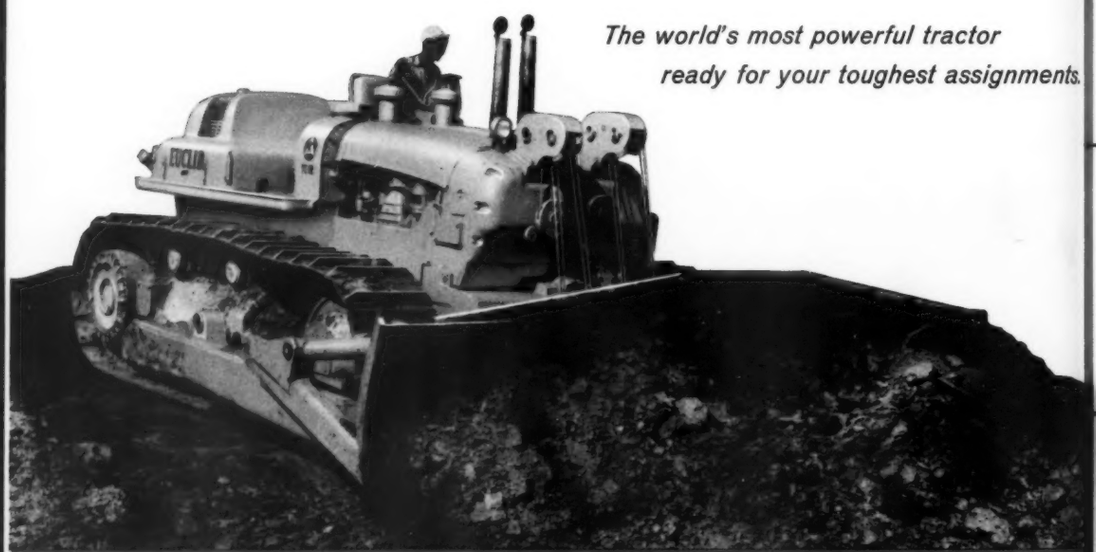
TWIN POWER

425 NET H.P.

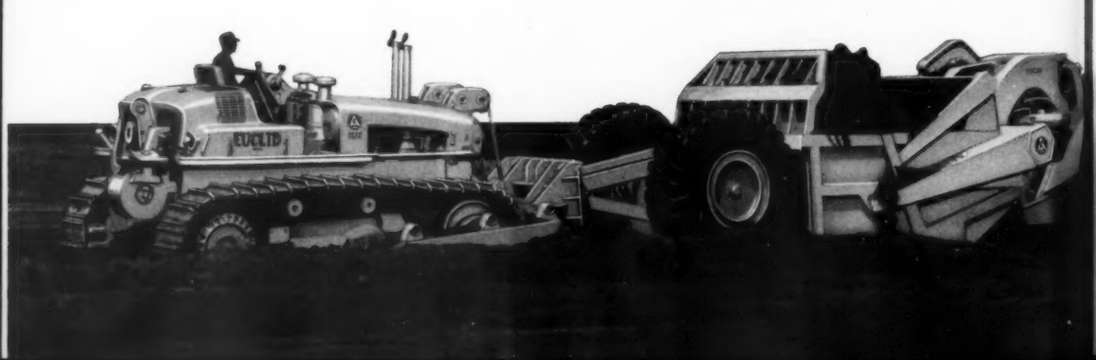
Unequalled Power...Performance...

A completely new concept in tractor design and performance when it was introduced 5 years ago, the TC-12 continues to lead the field in workability. Its functional, years-ahead design, 425 net h.p. and two Torqmatic Drives make it the best all-around performer in the big tractor field . . . for push-loading scrapers, dozing, heavy ripping and pulling big equipment. Big power, easy operation, good visibility and fast-on-its-feet maneuverability enable the TC-12 to get more work done every shift . . . and bring a better return on investment.

The world's most powerful tractor ready for your toughest assignments.



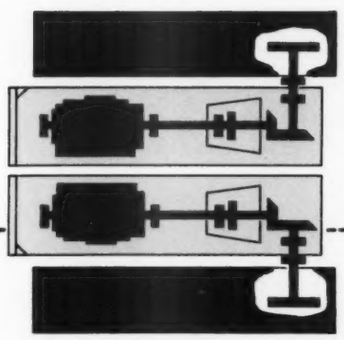
Reliability proved by thousands of operating hours on all types of jobs!



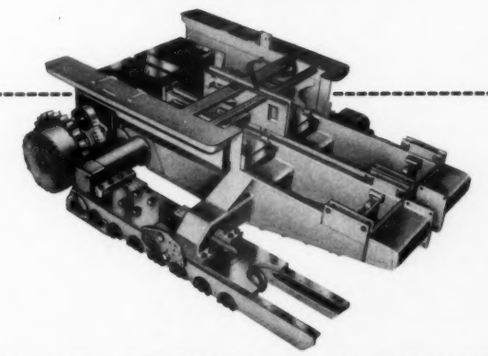
Maneuverability...Ease of Operation and Maintenance

5 BASIC ADVANTAGES OF THE TC-12

TWIN ENGINES . . . Total of 425 net h.p. With two performance proved engines the TC-12 has up to 35% more net h.p. and 46% more work capacity than the biggest tractors of other makes. Separate Torqmatic Drives for each engine automatically match power to work requirements for push-loading scrapers and heavy dozing.

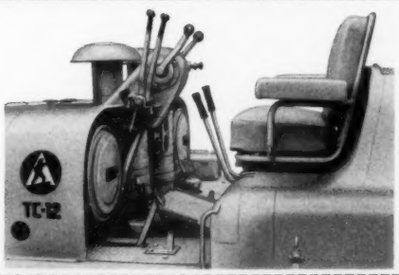


INDEPENDENT TRACK DRIVES Separate power trains provide individual control of speed, power and direction of each track. Spin turns can be made in its own length by simply reversing the direction of one track. Since only half of the total h.p. of the TC-12 can ever be applied to each track, there's no shock load in turning . . . less wear and tear on sprockets, tracks, rollers and other driving parts.

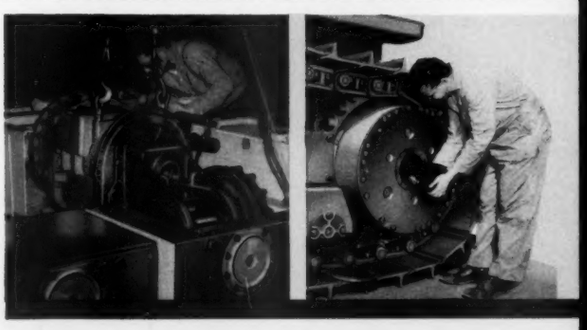


RIGID TRACK ALIGNMENT Each track is rigidly positioned to its main frame and is kept in constant alignment . . . a large diameter pivot shaft connects the two frames and permits free oscillation of each half for maximum traction on rough ground. Heavy track frames, just above ground level, add to stability and transfer shock loads to the rugged main frames. Longer track life, and resulting reduction of downtime and maintenance costs, are important advantages of constant correct track alignment.

FAST, EASY OPERATIONS Full power shifting . . . independent track drive with separate power trains . . . ability to spin turn in its own length . . . good visibility . . . convenient simplified controls . . . elimination of all clutching . . . ample operator space for comfort . . . excellent over-all balance . . . all of these factors contribute to easy operation that improves operating efficiency and gets more work done every shift.



UNEQUALLED ACCESSIBILITY Advanced engineering and unitized assembly of components reduce downtime for maintenance and repair. "Package" assembly and out-in-the-open accessibility saves many hours in the removal, servicing and replacement of engines, sprockets, converter-transmissions, final drives and other components. For example, drive sprockets can be replaced in about one-half the time required for a competitive crawler . . . final drives four times as fast . . . transmission-converter and brake package in one-fourth the time.

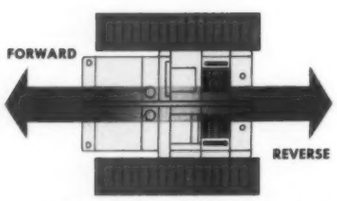


EUCLID *TC-12* BIG POWER PERFORMANCE PRODUCTION

to beat the pinch on profits

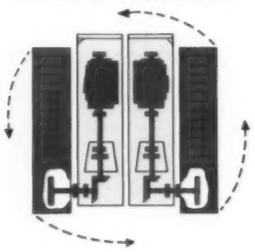
TWIN POWER

425 NET H.P.



NO CLUTCHING . . . NO STOPPING

FULL POWER SPIN TURNS



Speeds up work cycles . . . higher job availability

Whatever the application . . . heavy dozing, ripping, push-loading scrapers, etc. . . . the power, speed and mobility of the TC-12 get more work done faster. With full power shift, from any speed range to another and from forward to reverse and back again, there's no clutching. Independent power trains for each track permit spin turns and variable power application for slide slope and other work. Functional design provides excellent accessibility and easy operation . . . cuts downtime for servicing and repairs far below that required for any other big tractor. Prove to yourself that the Euclid TC-12 gives a better return on investment.

Get all the facts now!

EUCLID DIVISION OF GENERAL MOTORS
Cleveland 17, Ohio

EUCLID (GREAT BRITAIN) LTD.
Lanarkshire, Scotland

. . . a complete line of equipment for heavy earthmoving, mining, logging and many industrial operations . . .

Printed in

Clark enters hydraulic field

Contractors will get better performance out of earthmoving equipment as a result of the recent opening of a new division of Clark Equipment Co.

The Hydraulic Products Division, Benton Harbor, Mich., is now in business. It is turning out hydraulic pumps to equip the Michigan line of scrapers and tractor shovels.

From the standpoint of field maintenance, the new line of hydraulic pumps has several exclusive features. The pumps can be taken apart in the field and rebuilt without loss of efficiency. Seal replacement is also a field operation. The mechanic simply moves a snap ring, removes the old seal and replaces it with a new one, moves the snap ring back into position—and the repair is made.

The lightweight aluminum pumps have capacities ranging from 1.5 to 150 gpm. They can operate at pressures up to 3,500 psi and speeds up to 5,000 rpm.

According to John Lauck, general manager of the division, the new pumps are low in cost because of the simplicity of their design and because they are completely machined and tested with automatic machinery on the production line.

At present the division is manufacturing only pumps, but it will soon be set up to manufacture hydraulic valves, motors, and other hydraulic products. In addition to supplying the Clark Equipment Co., the division will sell its products to other manufacturers. THE END

In the showroom of the Benton Harbor plant, John Lauck, general manager of the Hydraulic Products Division of Clark Equipment Co., points out merits of the firm's new line of hydraulic pumps. The cutaway model is the largest of the line.

Kentucky highway news

R. L. Parker has been appointed assistant state highway engineer for the Kentucky Department of Highways. Former assistant director of maintenance, Parker succeeds J. F. Stigers, who has retired.

Stone & Webster appoints

Howard E. Marx has been named to supervise construction of Project EHV (Extra High Voltage) near Pittsfield, Mass., for Stone & Webster Engineering Corp., Boston and New York City. The General Electric Co. experimental line is designed to carry electric power at super voltages higher than ever before transmitted. The full-scale 4.5-mile system is scheduled to carry power at a maximum of 750,000 volts.

NCEF elects new director

The North Carolina Engineering Foundation has elected Frederick C. Gardner to a 4-year term on its board of directors. He is president of Ebasco Services Inc., engineering, construction, and business consulting firm of New York City.

Wisconsin highway news

Harold J. Roche has been appointed chief of public information of the Wisconsin State Highway Commission. Roche replaces W. F. Steuber, who was named assistant to the state highway engineer.

Need HOSE in a *HURRY?*

Suction • Water • Steam Air • Multi-Purpose Discharge • Pile Driver

Wherever your job is—*whenever* you need hose—there's a Continental Warehouse nearby stocked to give you any kind of hose you want—*when* and *where* you want it.

There's no need to wait for distant shipments—no need to stop the job—no need to lose profits.

Any time you need hose call Continental. You'll like the fast service and dependable quality you get from these warehouses:

BALTIMORE, Md.	CLEVELAND, Ohio
BOSTON, Mass.	DETROIT, Mich.
CHICAGO, Ill.	MEMPHIS, Tenn.
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FIND US FAST IN THE YELLOW PAGES	ST. LOUIS, Mo.

Continental Suction Hose is recognized nationally by contractors for its superior quality—not an ordinary hose, but a hose built for rugged, dependable service. Sizes 1½" through 12", for water and/or sand suction. Send for catalog of HOSE and PROTECTIVE CLOTHING.

HOSE by CR **CONTINENTAL**

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EXPANSION JOINTS ...

used wherever good design requires a top-quality joint filler in concrete construction

The "SEALTIGHT" line of time and job proven, top-quality expansion joints are specifically designed to meet the needs of modern, properly-designed, properly-jointed concrete construction projects. Ideal for pavements, runways, bridges, buildings, ramps, etc. Produced to strict quality-control standards . . . available "from stock" at your local "SEALTIGHT" distributor for immediate delivery.

MEMBER EXPANSION JOINT INSTITUTE

SEALTIGHT®

PRODUCTS

- EXPANSION JOINTS . . . Asphalt, Fibre, Cork and Sponge Rubber.
- TONGUE and GROOVE Center Strip.
- Hot and Cold Rubber Asphalt Joint Seal.
- Hot and Cold JFR Rubber Asphalt Joint Seal.
- Air Entraining Agents.
- Curing Compounds.
- Curb and Gutter Sections.
- "PREMOULDED MEMBRANE" Vapor Seal.
- "SEALTIGHT" PVC Waterstops.
- "HYDROMAT" Asphalt Liners.

ASPHALT EXPANSION JOINTS
SEALTIGHT Premoulded Asphalt Expansion Joints have been in general use for more than 30 years. They provide initial low cost and durability. Entirely waterproof and rigid, they are highly recommended for most every joint installation. Furnished in cut sizes or slabs. Meets A.A.S.H.O. Spec. M-33-49 (also 42 and 48), A.S.T.M. Spec. D-994-53-T, U. S. Navy Dept. 4-Y-D and 13-Y-C, and all State and Federal Specifications.

FIBRE EXPANSION JOINTS
SEALTIGHT Fibre Expansion Joints are resilient and non-extruding, composed of durable cane fibre uniformly impregnated with asphalt. Furnished in cut sizes or slabs. Meets A.A.S.H.O. Spec. M-59-49, A.A.S.H.O. Spec. 153-52 Type 3, Federal Spec. HHF-334 and HHF-341a Type 1 Class B, A.S.T.M. Spec. D544-49 Type 5, U. S. Navy Spec. 4-Y-D paragraph 1-10 part 2, and all State and Federal Specifications.

CORKFILL EXPANSION JOINTS
Similar in general construction to Asphalt Joints, they are made up of a shockproof mass of clean, granulated cork particles, uniformly combined with pure blown asphalt. They are ideal where low water absorption, resiliency and non-extruding properties are desirable. Especially adaptable for residential and industrial floor slab areas in termite infested territories.

SPONGE RUBBER EXPANSION JOINTS
A fully resilient, non-extruding joint composed of high quality blown sponge rubber of uniform thickness and density. Gray in color to blend with concrete . . . used wherever exposed joints in concrete must be inconspicuous. Ideal for floors, wall panels, bridges, viaducts, etc.

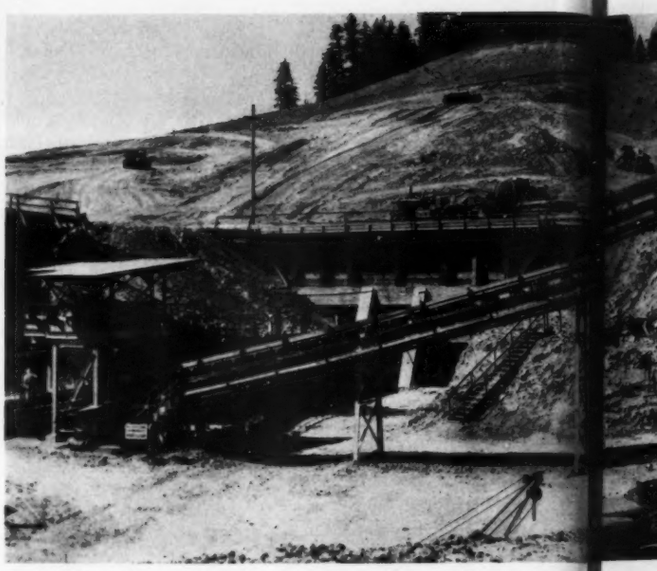
Write today for complete information on SEALTIGHT Expansion Joints and other top-quality SEALTIGHT products for better construction . . . ask for the "PAVING PRODUCTS" Catalog.

W. R. MEADOWS, INC.
13 KIMBALL ST. • ELGIN, ILLINOIS

For more facts, use Request Card at page 18 and circle No. 305

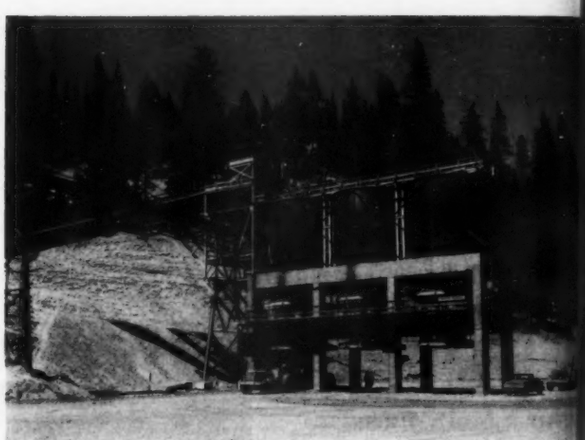
Conveyor syste

1 Cat DW20 scrapers pick up Zone 1 material for the first leg of a long trip—most of it by conveyor—to Trinity Dam, more than 2 miles to the east. The conveyor takes the place of a haul road that would have been much longer.



2 The belt in the foreground feeds straight to the crusher; the other b joins the first at a transfer point under the roof at left. A splitter at t top of the plant divides the flow to two 4×12-foot screens. Oversi goes to roll crushers; minus 6-inch goes directly to the conveyor.

3 The material then takes off on 11,000 feet of 42-inch belt conveyor in 9 flights. The conveyor is made up of Link-Belt stringers with Barber-Greene roller assemblies and Goodrich belt. Here, flights go down a 25 per cent grade.



4 Three 500-yard bins are located on a tower at the conveyor termin if incoming material cannot be handled by the bins, it is stockpiled the conveyor at left.

5 A driver pulls a cord to get a 32-yard load and start the next we cycle. A locking device prevents discharge until an electric-eye cir is again broken by a fin on a DW20.

6 Zon that a Sc

7 A Sou emba miles

ste elivers core material to dam

by RALPH MONSON, field editor

Belt carries materials two miles down steep grades from mountaintop borrow pit to processing plant

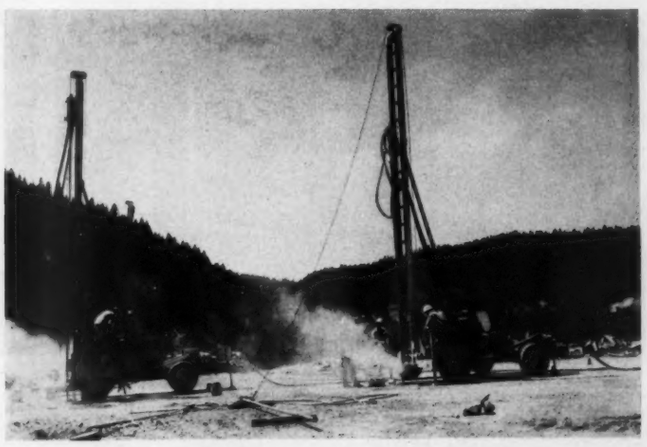
The job of moving 9.4 million cubic yards of material more than two miles from a mountaintop borrow pit into the embankment for Trinity Dam is a 3-year project for a huge belt-conveyor system augmented at both ends by motor scrapers. Five of the nine flights of the conveyor system plunge down the mountainside at a 25 per cent grade, dropping some 850 feet to the terminal plant.

The conveyor and scraper system produces, processes, and delivers Zone 1 material for the impervious core of the huge earth-fill dam being built across the Trinity River about nine miles upstream from Lewiston, in northwestern California. The general contractor for the $48,928,100.50 project is a joint venture headed by Guy F. Atkinson Co., South San Francisco, called Trinity Dam Contractors. Others in the joint venture are: M. J. Bevanda; Charles L. Harney, Inc.; Ostrander Construction Co.; A. Teichert & Sons; and Trepte Construction Co.

Trinity Dam is one of the first phases of the $225 million Trinity River Project, a division of the U.S. Bureau of Reclamation's Central Valley Project that supplies water to California's huge Central Valley basin for agriculture, industry, and domestic needs. The reservoir behind the big earth dam will hold 2.5 million acre-feet of water.

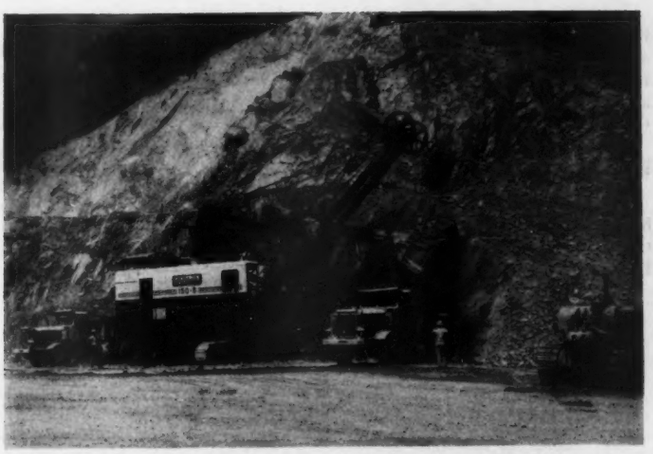
(*Continued on next page*)

6 Zone 3 material consists of cobbles thrown up in huge piles by gold dredges that worked this valley in years past. A B-E 150-B 8-yard electric shovel loads a Southwest 30-yard bottom-dump pulled by an International Payhauler.

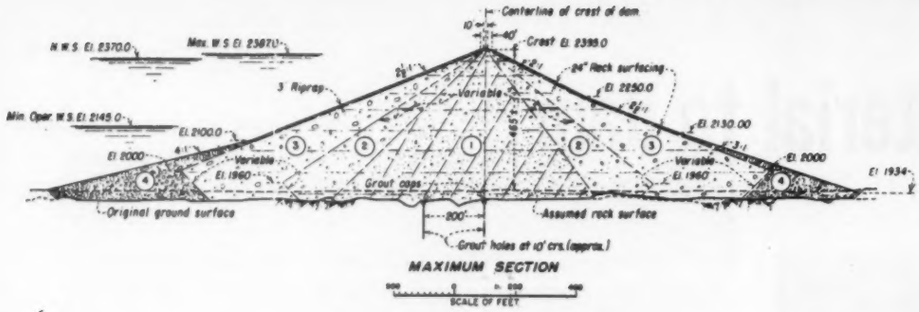


8 Zone 4 of the dam calls for shot rock, which is being obtained from a quarry near the job. Four Joy Challenger drills with Brunner & Lay 4½-inch Rok-Bits drill the face to a depth of 44 feet, using only two steels.

7 A Southwest wagon pulled by a Mack 400-hp tractor empties its load on the embankment. All available cobbles will be used from an area about three miles downstream and six miles upstream from the dam.



9 Blasted Zone 4 rock is loaded to Euclid 22-ton end-dumps for the haul to the embankment. This material is simply dozed into place in uniform layers. Spillway tunnel muck is also incorporated into Zone 4.



Embankment explanation, with yardage estimate:

1. 9,200,000 yards, selected weathered rock (clay, silt, sand, and gravel).
2. 4,200,000 cubic yards, selected weathered rock (silt, sand, gravel, and cobbles).
3. 13,400,000 cubic yards, alternating layers of selected dredger tailings (gravel, cobbles, and boulders), and selected dredger screenings and selected undredged sand and gravel (silt, sand, gravel, cobbles, and boulders).
4. 2,200,000 yards, rockfill and 200,000 yards, riprap.

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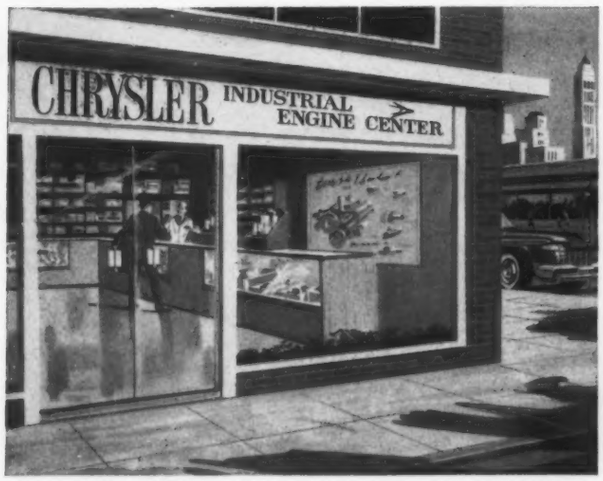

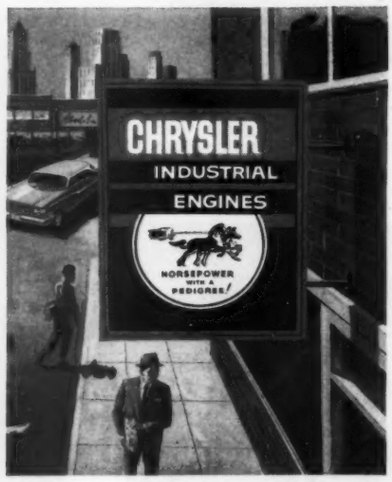

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For more facts, use Request Card at page 18 and circle No. 306

(*Continued from preceding page*)

Surplus water from the reservoir which would normally flow westerly into the Pacific Ocean, will be diverted easterly into the Sacramento River watershed through a series of tunnels and reservoirs. One of the first links in the diversion system is the 11-mile-long Clear Creek Tunnel which is presently under construction.

Water released from Trinity Reservoir will generate power in a 96,000-kw power plant, and then be re-regulated by Lewiston Dam, which is to be built about seven miles downstream. Water not needed in the Trinity River Basin will be diverted through the Clear Creek Tunnel to the 130,000-kw Clear Creek Power Plant, which will discharge into the proposed Whiskeytown Reservoir.

Water from the Whiskeytown Reservoir will be carried by the 3-mile-long Spring Creek Tunnel to the 143,000-kw Spring Creek Power Plant which will discharge into the existing reservoir behind Keswick Dam on the Sacramento River. The project is expected to yield nearly 1.5 million acre-feet of water yearly for use in the Central Valley Project.

At present, only Trinity Dam and the Clear Creek Tunnel are under construction. Contracts for the Lewiston and Whiskeytown dams and the Spring Creek Tunnel will be awarded in the spring of 1960. As yet unresolved is the question of whether the power-development features will be built by public or private interests. Pacific Gas & Electric Co. has offered to build the power plants and buy water from the government.

Material in four zones

One of the highest earth-fill dams in the country, Trinity Dam will rise 537 feet above the low point in the old stream bed and reach 2,440 feet across the valley. Its 30 million cubic yards of earth, sand, gravel, cobbles and rock embankment is being placed in four zones.

Zone 1 is the central impervious core. It will contain 9.4 million cubic yards of selected materials, which are being handled by the conveyor system. This impervious core has a wide base and has slopes on both upstream and downstream faces to a width of 20 feet at the crest of the structure.

Outside the impervious core on both upstream and downstream sides there will be successive courses of semi-pervious Zone 2 material, Zone 3 cobbles, and Zone 4 quarry-run shot rock.

Borrow on mountaintop

The designated source of material for Zone 1 is a borrow area on the top of nearby Pettijohn Mountain. This material is primarily a weathered and disintegrated andesite, with some hard pieces of occasional solid outcroppings. With the exception of the outcroppings, the material breaks down well under the rippers and dozers of four Cat D9 tractors that also push-load the scrapers.

Between the borrow pit and the dam site lie more than two miles of

rugged mountain terrain. Building a safe road, adequate for a continuous 2-directional flow of heavy haul units, would have been a major undertaking in this rough country. And such a road would have been much longer than the two miles as the crow flies and the conveyor flows. Even if the road construction was feasible and economical, there would always be a potential hazard in operating the haul units up and down the long grades.

The big conveyor provided the answer to all of these problems and had some additional advantages. It carries the material easily and swiftly down grades as steep as 25 per cent. It requires little power for operation, since electric motors on the steep sections regenerate current into the system. It provides a simple feed and recovery system from the screening and crushing plant en route. It delivers the material to the terminal processing plant in a continuous stream, which simplifies the addition of the proper amount of water.

The nine flights of the main conveyor consist of 42-inch Goodrich rubber belting, which travels on Barber-Greene rollers mounted on Link-Belt stringers. The line undulates with the mountaintop topography for the first half of its length; it then plunges down the mountainside in a zigzag path at a 25 per cent grade to a low point before climbing one last flight to the conveyor terminal.

Traveling at a speed of 650 fpm, the 11,000 feet of main belt deliver about 1,400 cubic yards of material per hour to the terminal processsing plant in a smooth, steady stream. In addition to the main-line conveyors, there are two flights feeding the crushing plant at the borrow area and two additional flights at the terminal plant.

Scrapers feed belt

In the borrow area, nine Cat DW20 scrapers, push-loaded by the D9's, pick up the material and haul it to open-deck bridges over surge bins. The two bridges are at right angles to each other. All of the DW20 scrapers on this job have been modified by Peterson Tractor Co., San Leandro, Calif., to increase their capacity to 26 yards struck. They have been lengthened and reinforced as well as side-boarded. The tractors are all equipped with turbocharged engines for extra power.

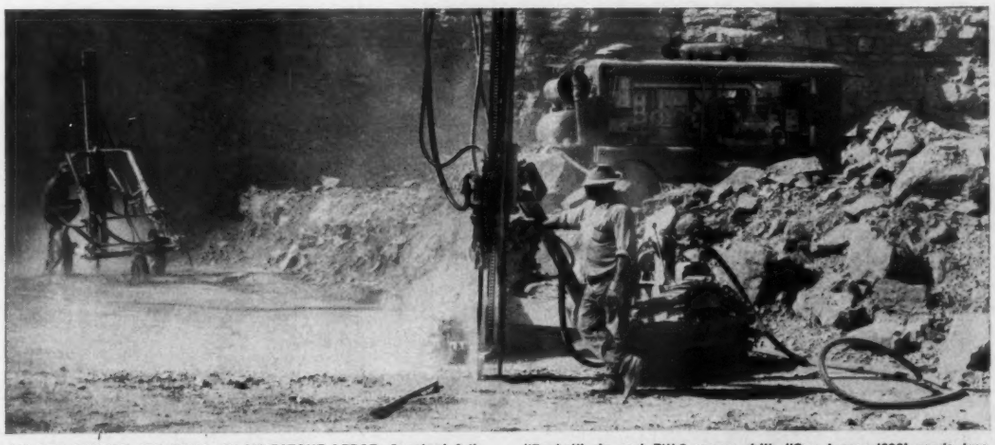
Link-Belt apron feeders in the bottom of the surge bins under the bridges deliver a steady flow of the material to the two conveyor belts. One of these runs from the surge bin directly to the top of the screening and crushing plant. The second runs from the surge bin to dump material at a transfer point over the first belt.

Screening and crushing

At the top of the screening and crushing plant, a splitter divides the flow of material to two Ty-Rock 4×12-foot vibrating screens with 6-inch openings. The material passing

(*Continued on next page*)

The DW20's, modified by Peterson Tractor Co., San Leandro, to increase their size to 26 yards struck, unload at two dumping bridges located over surge bins feeding 42-inch primary feed belts. Most of the 9.4 million yards of material required for Zone 1 consists of a weathered andesite that breaks down well with ripping and dozing.



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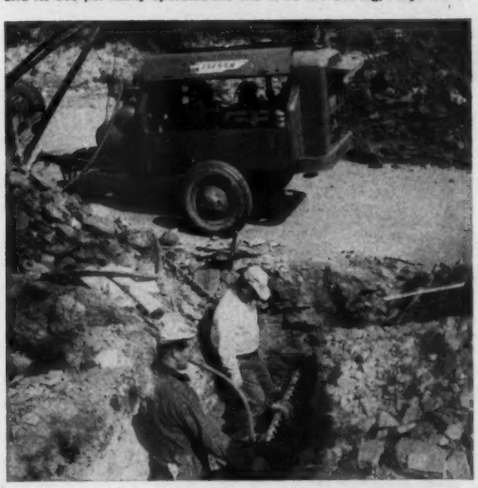

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The embankment for Trinity Dam, which will stretch 2,440 feet across the valley and rise to a height of 537 feet above the lowest point in the old stream bed, looked like this in the early stages of construction. The sheepsfoot rollers, pulled in single and tandem pairs, are compacting Zone 1 material. In the background, Euclid end-dumps are placing the Zone 4 rock, and scrapers are coming down the haul road from the conveyor terminal with Zone 1 material.

(Continued from preceding page)

the screens goes directly to the main conveyor on its way to the dam: Oversize goes to two Gruendler roll crushers set at 5 inches. These crushers reduce the oversize to minus 5-inch and deliver it directly to the belt.

The several flights of the belt are driven by General Electric motors powered through transformers from a commercial power source. On the downhill sections, where braking is important, each flight is also equipped with a special brake that is essentially a big air fan that prevents runaway speeds in case of mechanical or electrical failure.

The final flight carries the material to a transfer point at the conveyor terminal plant. Here, a shuttle conveyor usually delivers the material to the plant bins, but an auxiliary conveyor can be used to build a stockpile, if the processing plant is overloaded or is not in operation.

Water added at plant

The processing plant at the conveyor terminal consists of three 500-cubic-yard cylindrical steel bins mounted on a tower so that haul rigs can drive underneath. Each of the bins is equipped with a series of spray nozzles at the top for adding water to material entering the bin.

The shuttle conveyor above the bins can be run back and forth to deposit material in any bin selected by the operator. As the material falls from the conveyor, the water is turned on in that bin. The jets of water shoot out at right angles to the falling material, giving a very thorough mixing action.

Beneath each of the bins is an automatic batching hopper that weighs out 32-cubic-yard loads of the moistened soil. As one of the Peterson-converted DW20's drives under the bin, the driver pulls a cord, actuating the hopper gate. In a very few seconds, the scraper has a heaping load. With the three bins it is possible to load three scrapers at a time.

As the driver pulls the cord to get his load, he automatically starts the mechanism that weighs out the next load. Accidental dumping of the weigh hopper is prevented by having their gates equipped with a safety lock controlled by an electric eye. Each of the scrapers is fitted with a flaglike steel fin that stands above the highest part of the machine. As the scraper pulls into place to receive its load, the fin intercepts a beam of light, actuating the electric eye and permitting the load to be dumped. As soon as the loaded scraper pulls away, the gates are again locked until the next rig pulls into place.

Closed-circuit TV

The plant operator works from a station at the top of the plant and directly over the shuttle conveyor. From this vantage point, he can see down into the three big bins as he controls the position of the shuttle conveyor and the flow of water into the bins. From this point, however, he cannot see what is going on beneath the bins where the scrapers are loading.

Here, a closed-circuit television system comes to his aid. A television camera is mounted out on the stock-

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As a D9 tractor-dozer spreads and compacts the cobbles, an International Payhauler with 6,000-gallon water tank wets down the rock. The hill in the background is the right abutment of the dam.

piling conveyor tower, pointing toward the bins. A receiver in the plant operator's cage gives him a clear view of the loading area at all times. If he sees a scraper pulling into place under the bin he is filling, he knows he can plan on having room for another 32 yards of material within the next few seconds.

As many as eight of the DW20's haul from the processing plant to the dam embankment. At the start of the job, this is a downhill haul to the foundation area. As the embankmen rises, the haul road becomes flatter.

The scrapers spread the material in uniform 6-inch lifts on the embankment, where it is compacted by 12 passes of a special heavy sheepsfoot roller. The rollers used here were designed and built especially for this job by Peterson Tractor Co. The 6X6-foot drums each have 168 feet with replaceable caps. The rollers weigh 93,440 pounds empty and 128,000 pounds when ballasted with water.

The drums can be used singly, in pairs, or in tandem sets of four. One of the unique features is a hydraulic steering system used with the 4-drum combination. This steering device permits the operator to control the drums going either forward or in reverse, even at relatively high speeds. This, in turn, eliminates the need for turning around at the end of each pass and greatly facilitates the compaction in tight spots, such as along the abutments. Nine pairs of the big sheepsfoot rollers are in use on the embankment. Single pairs are usually pulled by D8 tractors, while D9's handle tandem pairs.

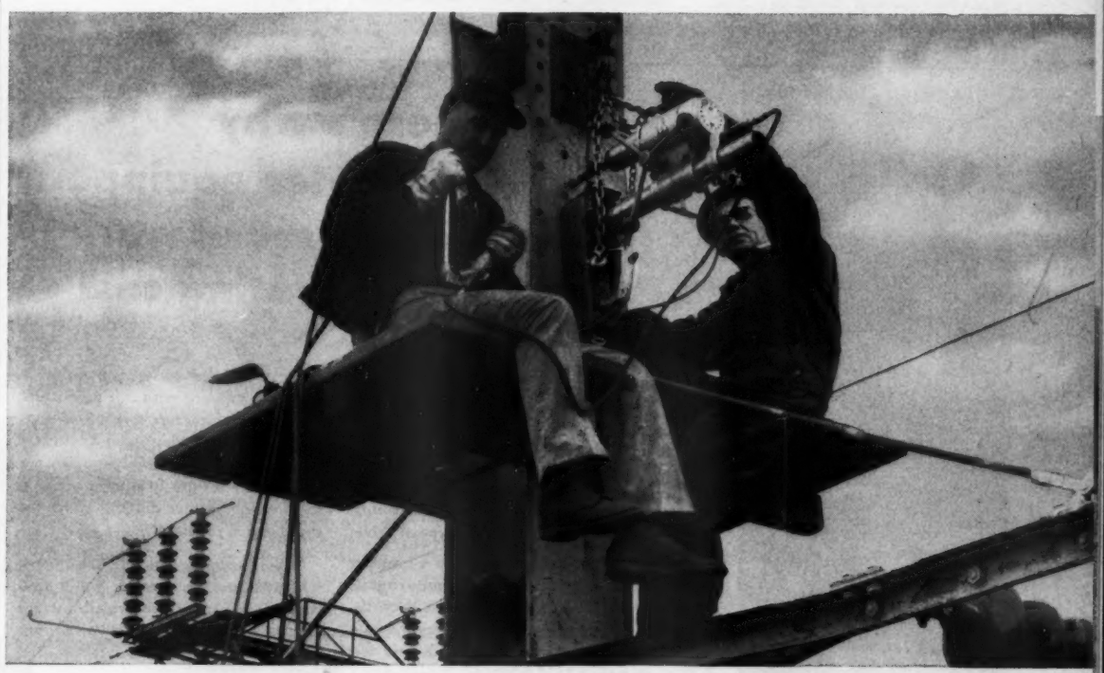
After compaction, the surface of each 6-inch compacted lift is scarified by a shop-built manipulator attached to the rear of a D8. The next lift is then placed in the same manner.

Immediately outside of the impervious core is a blanket of random earth material, classified as Zone 2.

(*Continued on next page*)

At the conveyor terminal, the material travels out on a shuttle conveyor to be deposited in one of three 500-cubic-yard bins. As material falls into a bin, jets of water are turned on to wet the soil. It also provides a mixing action as the material falls.

For more facts, use coupon or circle No. 309→



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(Continued from preceding page)

which is obtained from foundation and abutment excavation, quarry overburden, and other sources. It is basically an earth, sand, and gravel mixture designed to use almost any material at the site that cannot be used in one of the other zones.

Much of the Zone 2 material was stockpiled during the early stages when the foundation was being excavated. Cat DW20 scrapers deliver the material to the embankment, as it is needed, from stockpiles or directly from the excavation.

Cobbles make up Zone 3

Backing up both the upstream and downstream faces of the Zone 1 and 2 sections is a heavy course of cobbles. These zones of cobbles are 300 feet thick near the base of the dam and taper to 10 feet near the top. The material consists of rounded stones ranging from fine gravel to 18 inches in diameter.

The cobbles, thrown up long ago by dredges seeking gold in the gravel of the Trinity River bottom, are spread in huge windrows for miles along the river valley. In some spots they have been grown over with vegetation. To obtain the required 13,400,000 cubic yards of the cobbles, the contractor will use all of the available material from about three miles downstream and six miles upstream from the dam.

To start this operation, Cat D9 tractor-dozers cleared away the vegetation, pushed the cobbles into piles, and dozed out access roads for the loading and hauling equipment.

The cobbles are picked up by Bucyrus-Erie 150-B electric power shovels with 8-yard dippers and loaded to a fleet of Southwest 30-yard bottom-dump haul units. These huge rigs are pulled by International Payhaulers or Mack tractor units fitted with Cummins 400-hp diesel engines.

As the bottom-dump rigs unload on the embankment, a Cat D9 tractor-dozer spreads the cobbles in a uniform lift. They are then flushed down by an International Payhauler water wagon fitted with a 6,000-gallon tank, and compacted by four passes of a crawler-type tractor weighing approximately 40,000 pounds.

For more facts on Insert, circle No. 312.

Face is shot rock

At the upstream and downstream toes of the dam, both of which are riprapped, is a zone of quarry-run shot rock. This Zone 4 is a heavy fill that ranges in thickness from [illegible] feet near the bottom of the upstream toe to 3 feet at the top, some 10 feet above the river bed. The upstream face is covered with 3 feet of heavy riprap above the Zone 4, and the downstream face with 2 feet of rock surfacing above the Zone 4. The rock is quarried in the side of a mountain upstream from the left abutment of the dam.

Four Joy Challenger 4½-inch drills using Brunner & Lay carbide-insert Rok-Bits, drill the face to an average depth of 44 feet. These big units are able to drill to this depth with only two steels. Holes are loaded with fertilizer-type explosives, with a box of 40 per cent dynamite in the bottom of each hole. The shots are detonated with Primacord or electric caps.

Another Bucyrus-Erie 150-B electric shovel loads the shot rock into Euclid 22-ton end-dumps that haul to the embankment. There is no processing of this quarry-run material. It is simply dozed into place in uniform layers as it is dumped on the embankment. Muck from the spillway tunnel excavation was also hauled out onto the embankment and incorporated into Zone 4.

There are three of the big 150-B shovels on the job, and one 120-B. The hauling fleet includes 12 of the big Southwest bottom-dumps and [illegible] Euclid end-dumps, in addition to the fleet of Cat DW20's on the Zone 1 and 2 operations.

Personnel

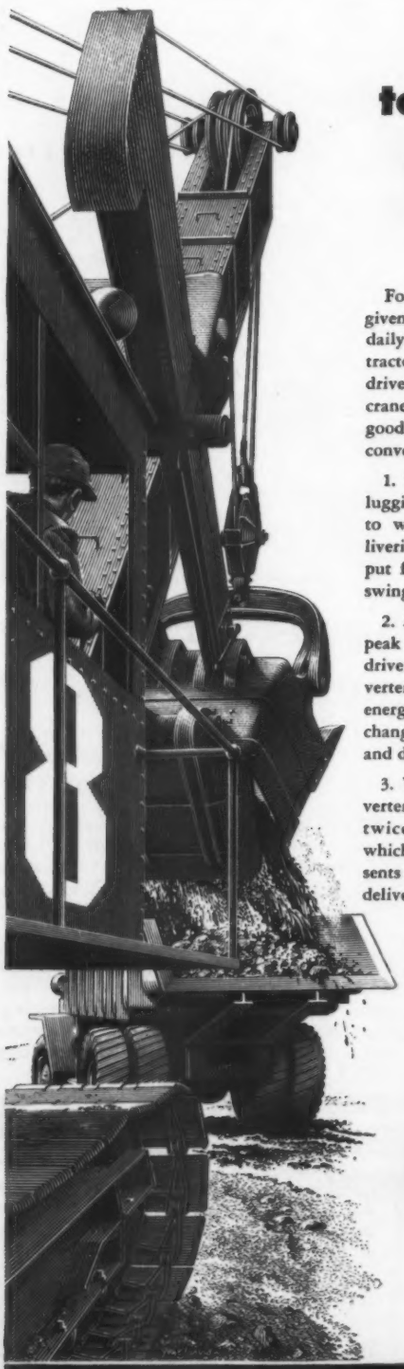
The project manager for Trinity Dam Contractors is A. H. Steiner. On his staff are business manager E. [illegible] Platt, assistant project manager Roscoe P. Downs, general superintendent Joe McNab, office engineer John Eilers, excavation superintendents Virgil Chapman and Jim Dailey, and master mechanic Ernie Ford.

The project engineer for the Bureau of Reclamation on the Trinity River Propect is Louis Ackerman and H. A. McInnis is assistant project engineer. The field engineer on the Trinity Dam job is Marion W. Archibald. THE E[illegible]

Trap Rock film set for viewing abroad

"From Mountain to Main Street," a 16-mm color film from the New York Trap Rock Corp., West Nyack, N. Y., will soon be viewed abroad. The United States Information Agency has approved the film, which describes the production of crushed stone, for showings in foreign countries.

The Winnipeg Fuel Supply [illegible] Ltd., Manitoba, Canada, is the first National Crushed Stone Association member outside the U. S. to take advantage of the opportunity.



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1. The torque converter eliminates lugging and stalling . . . permits engines to work at maximum efficiency delivering constant high-horsepower output for heavy digging loads and fast swinging.

2. *Smooth* converter power reduces peak loads throughout the machine's drive train because fluid within the converter absorbs much of the impact energy caused by quick drum speed change . . . thus protecting *both* driving and driven equipment.

3. When necessary, the torque converter smoothly delivers approximately twice normal torque to the drum, which, at slow digging speeds, represents an important advantage in power delivered to the dipper.

4. Cable life is extended since no sharp impact loads ever reach cables through the torque converter . . . constant line tension is maintained . . . there's no jerking or snapping.

5. An infinite variety of ratios is available to work with . . . permitting smooth, accurate, *safe control* of loads and delicate "inching" and "holding" under power . . . as well as adjusting for wide variations in dipper loading, substituting greater digging effort for speed, when required.

Wherever earth and rock are moved, you'll find contractors using these five advantages . . . *to convert their horsepower into greater-than-ever profits!*

• • •

Twin Disc Torque Converters—*three-stage* or *single-stage*, from 30 to 1000 hp—are available from all leading manufacturers of heavy-duty machines. Be sure to specify one in your next unit. Take advantage of the five reasons why torque converter equipped machines do *more* work at *lower* operating cost.

Twin Disc is the world's leading manufacturer of friction clutches and fluid couplings for heavy-duty industrial applications . . . and the only manufacturer producing *both* three-stage *and* single-stage torque converters. Because of its complete line of industrial drives, Twin Disc can offer *unbiased* recommendations for any heavy-duty power transmission application.

TWIN DISC
Torque Converters

TWIN DISC CLUTCH COMPANY, Racine, Wisconsin • HYDRAULIC DIVISION, Rockford, Illinois

BRANCHES OR SALES ENGINEERING OFFICES: CLEVELAND • DALLAS • LOS ANGELES • NEWARK • NEW ORLEANS

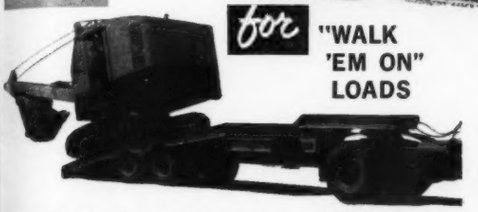
For more facts, use Request Card at page 18 and circle No. 310

ROGERS STILL The Original Low Bed Trailer THE POPULAR PREFERENCE

for QUICK LOADING AND FAST MOVES

The THPG Trailer's Patented gooseneck permits detaching, loading and reattaching in as little as five minutes; or it can travel with the deck above the normal position for increased roadway or below the normal position for decreased overall height clearance.

The hydraulic mechanism is operated by the truck's power take-off or by a gas engine mounted in the gooseneck adapting the trailer to operation by any tractor.

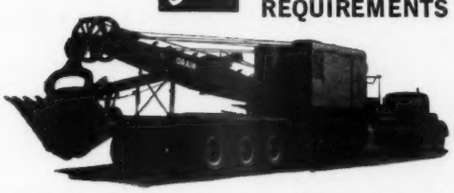


for "WALK 'EM ON" LOADS

Rogers Tilt-Deck Trailers are advantageous for hauling certain types of equipment—they load easily and are built in single and double axle models for varied requirements.

Some units have drawbars; others goosenecks for use with standard fifth wheels.

for MULTIPLE AXLE REQUIREMENTS



Efficient flotation and equalized loading on all tires are features of Rogers 3-Axle Trailers.

The Drop Deck Model (above) has minimum road clearance and loads quickly over the front by reason of the hydraulic detachable gooseneck.

Rear-axle is removable for shortened wheelbase.

Level deck 3-axle trailers have small tires and a sloping deck to facilitate loading. The entire length of the deck for carrying long equipment.

for GREATEST VALUE

The Rogers TVT Trailer is well named since it presents a value not even approached in any other trailer.

Rogers long experience, specialized engineering talent and uncommon facilities have produced units that have great capacity in proportion to weight, which haul and handle well and brake efficiently. The sloped deck facilitates loading.

for "LONG JOHN" LOADS

Rogers Pole Trailers are popular for hauling stacks, tanks, prefabricated beams and other long objects.

Drawbar extends to maximum reach or telescopes to minimum length for fast, safe return trips. Removable to meet special requirements as here illustrated.

Available with self-contained power steering for easy turning and maneuvering.

SEND ROGERS TRAILER LITERATURE TO

Name _____

Company _____

Address _____

For Attention of: _____

ROGERS BROTHERS CORP.
ALBION, PENNSYLVANIA

Experience Builds 'em — ROGERS — Performance Sells 'em

EXPORT OFFICE: 50 CHURCH STREET
NEW YORK 7, N. Y., U. S. A. CABLE

For more facts, use coupon or Request Card at page 18 and circle No. 311

Long Island Expressway contractor cuts maintenance cos usin

GULF MAKES THINGS RU

"We're working on a $6.5 million contract, and we keep a sharp eye on relative costs. For instance, we believe that downtime and repairs cost more than good fuels and lubricants. So, we keep downtime and repairs to a minimum by using clean-burning Gulf fuels and clean-working Gulf oils."

That's the word from Mr. William W. Spiess, Fleet Maintenance Superintendent for Gull Contracting Company, New York City. Their multi-million dollar contract involves construction of two miles of the new Long Island Expressway.

In just one location on this job, they're moving over 300,000 cubic yards of dirt, concrete and bituminous surfacing. Heavy equipment includes a Lorain 2¼-y mainten shovel, D8 Caterpillar dozers and a fleet of 14-yard M call a G diesel trucks.

All their diesel engines are fueled with Gulf Dies and lubricated with Gulf Super Duty Motor Oil. Eq GULF O ment records show rock bottom maintenance cost— Dept. DM plenty of proof that Gulf makes things run better. Pittsburgh

"When we open an engine for general overhaul," Mr. Spiess, "we find it clean, free from harmful c and sludge."

To find out why Gulf makes things run better, for "Gulf and Your Business" . . . and for the ne edition of "Contractors' Guide"—an 88-page manu

"We're m ect fuel," endent. ather bu

e cos using Gulf fuels and lubricants . . .

GS RUN BETTER!

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14-yard M

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or Oil. Eq
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or the re
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maintenance and lubrication of heavy equipment. Or, call a Gulf Sales Engineer at your nearest Gulf office.

GULF OIL CORPORATION
Dept. DM, Gulf Building
Pittsburgh 30, Pa.

GULF

"We're money and time ahead with clean-burning Gulf Diesel-ect fuel," says Mr. Spiess, Gull Fleet Maintenance Superintendent. "These fuel injectors cost up to $80 each. We'd rather buy clean-burning fuel than replace them too often."

SP-9466

Galvanized for Long Life

BETHLEHEM PERFECT VISION BRIDGE RAILING

When you install Bethlehem Perfect Vision Bridge Rail, you can count on years of service, free from unsightly corrosion. Galvanized to meet all ASTM specifications, Bethlehem Bridge Railing, under normal service conditions, will last as long as the bridge itself.

Send for our free booklet on Perfect Vision Bridge Rail. It gives full specifications and test data. Write to us at the nearest Bethlehem sales office, or direct your request to Bethlehem, Pa.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
Export Distributor: Bethlehem Steel Export Corporation

It's the Railing with Eye Appeal

- Neat, trim appearance . . . unobstructed view.
- Sturdy protection—the rail meets all AASHO strength specifications.
- Easy installation—delivered ready to install, only a few nuts must be tightened.
- Damaged rails easily replaced.
- Variable post spacing.
- Four styles available.

BETHLEHEM STEEL

BETHLEHEM STEEL

For more facts, use Request Card at page 18 and circle No. 313

Nuclear surface gage tests density, moisture of embankment compaction

A new nuclear test instrument, capable of determining density and moisture content during highway embankment compaction, has shown advantages which would expedite construction and improve quality control. The study was made on highway embankment construction on a Michigan interstate project by the U. S. Bureau of Public Roads. The nuclear method provides a means of adequately measuring density of large-size crushed-stone or gravel base courses, because the gage rests upon the ground surface and does not employ customary procedures. Conventional methods require volume determinations that are not practical for such materials.

Some of the advantages are:

1. Nuclear density and moisture determinations are made without disturbing soil structure.

2. The nuclear method eliminates the several conventional test procedures requiring trained personnel. Due to the increased speed of producing density results by the new method, closer control over quality can be maintained than with time-consuming conventional test procedures. The new method causes less interference to the contractor's operations.

3. The method reduces the personal element that is involved in conventional test procedures, thereby increasing the consistency of density and moisture test results.

4. It provides a means of performing density tests, upon large-size crushed-stone or gravel base courses and on frozen material, that are not practical with conventional methods.

5. It effects big money savings because of its greater speed and closer control over quality than can be obtained with conventional test procedures.

In the nuclear method, the gage is placed on the ground surface, the number is read from the counter tubes, and the count number is related to a graph or table to obtain a final result for density or moisture. A density measurement requires two minutes, and a moisture measurement requires another two minutes. Total testing time necessary to yield a result takes one technician four minutes.

When the gage is in use, the operator must stand at least one foot behind it to avoid being exposed to radiation. The greatest source of radiation exposure is in front of the gage.

Additional uses of the nuclear method may be developed. One is to measure the thickness of hardened concrete or bituminous-concrete pavements. Techniques can also be developed to measure the densities of such materials as freshly batched portland cement, bituminous concretes, or hardened pavements of other materials; stabilized soil-cement courses; and structural-concrete members.

TO LAY DRAINAGE PIPE IN TOUGH TERRAIN, Albert Bros., Salem, Va., brought in this International Drott TD-9 4-in-1 to handle 20-foot sections for a 2.6-mile stretch of Interstate 81, which will bypass Pulaski, Va. A total of 1,660 linear feet of pipe, weighing 1,800 pounds per joint, is being used for the project. The contractor also used the Drott 4-in-1 for construction of drainage culverts and for backfilling.

"I tried it myself...and the OC-126 changed my buying habits"

E. BOSIO, BOSIO CONSTRUCTION CO., MERRILL, WISCONSIN

"I'LL OUTWORK ANY OTHER MACHINE WITH THIS OLIVER"

Ed Bosio, general contractor, is another who looked beyond the so-called "old stand-bys" and came up with something really new and better: the Oliver OC-126 loader. He asked his Oliver distributor, Brooks Industrial Sales Inc., of Sun Prairie, Wisconsin, to demonstrate...and now can say:

"I use the OC-126 for loading, bulldozing, clearing land, basement-digging. It's the best machine in its size and power class. I can do again as much work because of its speed in loading. Its maneuverability is very impressive, too."

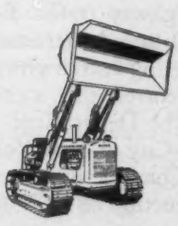
Bring yourself up to date on progress made in loaders ...work-try an Oliver OC-126. With "Spot-Turn" steering, it's the nimblest-handling 1½-yd. loader today. And its high-tempo work pace is just the beginning! You're time and profits ahead by Oliver's traditionally higher regard for quality...*demonstrated dependability*. For example, Oliver's "Spot-Turn" steering has wet (not dry) clutches—they run in oil!

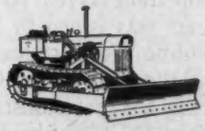
BEFORE YOU BUY ANY LOADER—EVEN LARGER—TRY A COMPETITIVE DEMONSTRATION OF THE OLIVER OC-126!

Also ask about:

OC-156 loader, 2¼-yd. capacity

OC-4 dozer and ⅝-yd. loader





THE OLIVER CORPORATION

Industrial Division, 19300 Euclid Ave., Cleveland 17, Ohio

a complete line of industrial wheel and crawler tractors and matched allied equipment

For more facts, use Request Card at page 18 and circle No. 314

$1,000,000 RECONSTRUCTION JOB

Saves New York City Vehicular and Transit System Bridge

River Water Seepage Problem Solved With Marlow Pumps®

The Roosevelt Avenue Bridge, over the Flushing River in Flushing, New York, carries trains of the city's transit system, as well as heavy highway traffic. Recently, it was noticed that the structure was sinking, endangering both highway and train travel. To correct this, a contract was issued by the Department of Public Works of the City of New York to the Woodcrest Construction Company for the reconstruction of the West approach to the bridge.

When the two-decked structure was originally built, it used wood piles sunk 70 feet below grade. As the ground on the site is mostly filled with fly-ash from incinerators, new steel piles were driven to between 100 and 120 feet below grade to properly support the new bridge abutments.

Seepage from the nearby river became a very serious problem when digging excavations for the abutments. In addition, the abrasive nature of the fly-ash fill could cause trouble to the pumps. To solve *both* problems, Ed Good, General Superintendent for Woodcrest, set up a 6E4 Marlow Contractors Pump. Running six hours a day, this 90,000 GPH, self-primer, sold by Foundation Equipment Co., completely controlled the onrushing water. The 360° cleaning action of the Marlow kept the casing clean and, because there were no close clearances in the pump to wear, the abrasive liquid caused no trouble in the units. Ed Good had used Marlows for some time and *knew* they would perform without trouble.

Marlows can help solve your construction pumping problems. There's a unit from Marlow's complete line of self-priming and diaphragm pumps that's just right for your job. Write today for the name of your Marlow dealer and a copy of Marlow Contractor Pumps Bulletin C-09.

Marlow PUMPS®

MARLOW PUMPS®

DIVISION OF BELL & GOSSETT CO.

Midland Park, New Jersey

Morton Grove, Illinois • Longview, Texas

For more facts, use Request Card at page 18 and circle No. 315

Increased safety, guidance service for automatic highway

An automatic highway of the future, offering virtually full-time electronic chauffeur service, has been unveiled in scale model by General Motors Research Laboratories. In a system adapted to toll roads, a driver would scarcely have to touch the controls of the car, except for making fuel and rest stops.

The Auto-Control vehicles are steered by an electromagnetic path created by a low-frequency electrical current from a cable embedded in the road. An electronic computer takes the signals from the cable and actuates a system to steer the car.

The guidance cable in the pavement is a crisscross wire in the center of the automatic lane; this cable also provides a means of measuring car speed. Another cable in the pavement provides a speed control signal, while other circuits regulate the speed of all automatic vehicles for safe spacing.

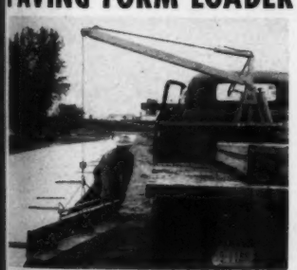
Obstacle detection is accomplished by dividing the highway into control sections or blocks. When a car is in a particular block, its speed automatically determines the speed of vehicles in two blocks behind it.

If a vehicle is stopped in the automatic lane, the following car is stopped in the first block to the rear, and this chain reaction backs up along the highway as other vehicles come within control range of preceding cars. Auto-Control could be used on turnpikes or other types of limited-access highways outside urban or metropolitan areas.

An Ohio gas tax boost from 5 to 7 cents is expected to produce $116 million in additional revenue during the next biennium. Revenue from the tax increase is earmarked for new state highway construction.

FOUNDATION FILL for housing units at Fort Dix, N. J., is brought up to floor-slab foundation level by a Hough H-90 Payloader tractor shovel. Foundation areas for the 702 Capehart housing units are approximately 5 feet deep × 88, 98, and 114 feet long. Terminal Equipment Corp., Wood-Ridge, N. J., is the general contractor on this $12 million project, under the supervision of the Philadelphia District of the U. S. Army Corps of Engineers.

FULLY-HYDRAULIC
PAVING FORM LOADER



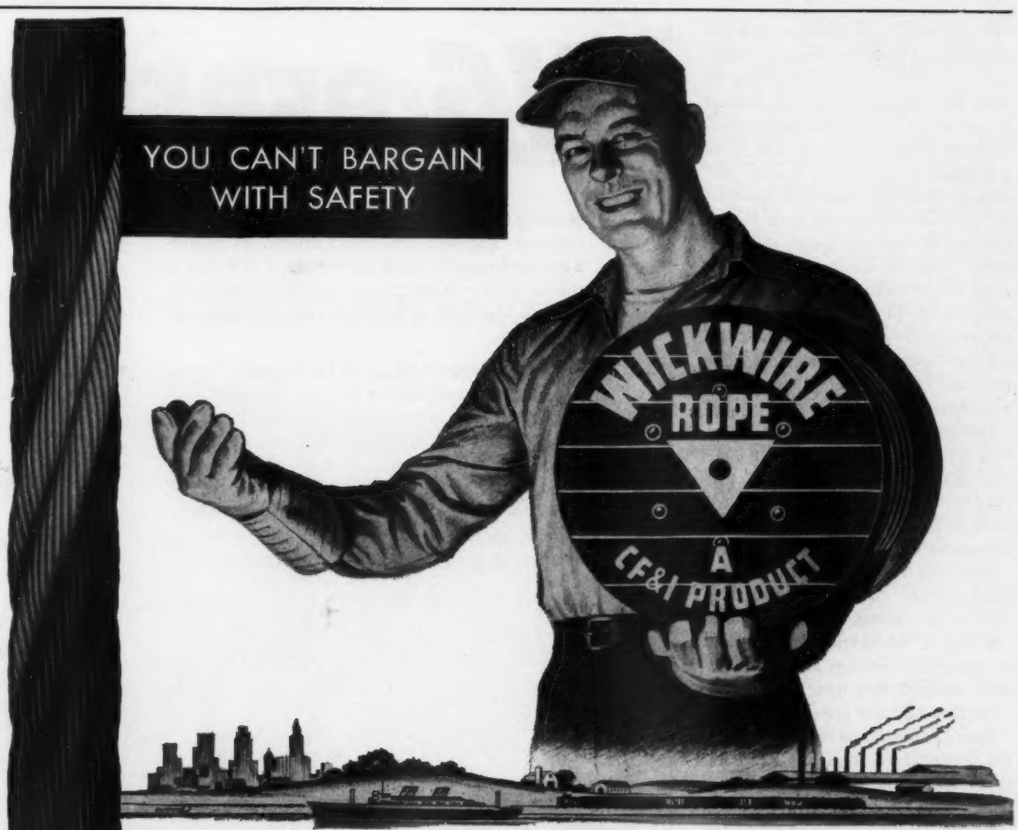
HANDILIFT crane saves time, manpower on PAVING JOBS!

Fully-hydraulic HANDILIFT speeds form handling, with far less manpower. As shown above—only ONE MAN is required to attach lifting bracket and stabilizer forms while truck driver operates crane from truck cab. One paving contractor in Kansas handles 800 paving forms per day in this fashion using a Handilift. HANDILIFT mounts on any truck, including pick-ups! It is powered by truck P.T.O. or auxiliary engine . . . lifts 650 lbs. with 7 ft. boom, or 450 lbs., with 10 ft. boom . . . works in 230° arc . . . takes in up to 16 ft. of line . . . moves loads smoothly! Controls can be mounted inside truck cab, or elsewhere! Also ideal for loading and unloading drums of oil, barrels of compound, etc., — quickly, SAFELY!

For complete details, plus low, low prices, WRITE:

3 MODELS—A, B & C—depending on optional equipment! Complete description of models in FREE literature.

Teale AND COMPANY
P.O. Box 308, Omaha, Nebr.



For extra high *strength wire rope...*
use **CF&I-Wickwire** *Double Gray*

The CF&I Image reflects CF&I's experience as a producer of many steel products and CF&I's versatility in developing new products to meet exacting requirements . . . like Wickwire Double Gray*.

The special steel used in Double Gray provides extra resistance to the deforming effects of peening and crushing which occur on the drums and sheaves of heavy equipment. Double Gray also gives extra resistance to abrasion.

Because of these superior qualities, Double Gray rope quickly repays its slightly higher initial cost in safer, more economical operations. Use it wherever extra high strength wire rope is required.

For a free copy of our Double Gray booklet, write to: Advertising Department, The Colorado Fuel and Iron Corporation, 575 Madison Avenue, New York 22, N. Y.

**Wickwire Double Gray Wire Rope is made of extra-improved plow steel. Fortified by an independent wire rope core of the same extra high strength steel, Double Gray rope has a 15% higher breaking strength than the catalog breaking strength of an improved plow steel rope with IWRC.*

WICKWIRE ROPE
THE COLORADO FUEL AND IRON CORPORATION

In the West: THE COLORADO FUEL AND IRON CORPORATION—Albuquerque · Amarillo · Billings · Boise · Butte Denver · El Paso · Farmington (N.M.) · Fort Worth · Houston · Kansas City · Lincoln · Los Angeles · Oakland · Odessa (Tex.) Oklahoma City · Phoenix · Portland · Pueblo · Salt Lake City · San Francisco · San Leandro · Seattle · Spokane · Tulsa · Wichita

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6632

CF&I STEEL

For more facts, use Request Card at page 18 and circle No. 317

Management

Purchasing:

Special items in subcontracts

by **GEORGE E. DEATHERAGE, P. E.**
construction consultant

When using the standard subcontract form of the American Institute of Architects for a project, it may be sufficient to complete the agreement by using the AIA acceptance of contractor's proposal without needing to add much in the form of special conditions. This is because the standard form and the acceptance refer to and are tied in with the prime contract, which includes the General Conditions of the Contract-standard form. Also, the specifications as prepared by the architect—which are part of the contract documents—may have covered the General Conditions of the Specifications.

However, some special conditions may have to be added from the contractor's point of view. These will need to be determined and attached, so that they are made part of the agreement or the acceptance.

Here are some examples of how these special conditions are taken care of on various classes of work; the type of subcontract form is that in which the drawings and specifications have already been named and identified, and the price stated.

Special notes to be made a part of the subcontract form for fireproof floor construction include these:

(A) Time of completion. (Continued from Article 2 in the printed part of the contract.) The builder agrees to give the contractor five days' written notice when to start work. This contractor, however, shall personally check and observe the progress of steel erection to advise himself and to organize his work in such manner as to comply with the following conditions for progress. The contractor having given due consideration to winter conditions agrees to maintain his floor arch construction at all times within two (2) floors of the steel erector's completed work, cooperating with the steel erector to insure progress for both contractors within the limitations of the provisions of the New York City Building Code governing conditions for progress. Completion of floor arch work shall be within two (2) weeks of completion of the steel contractor's work.

If the builder elects to have this contractor place the roof slab in accordance with the provisions of option paragraph "O" herein, this contractor agrees to do such work within the time allowance herein provided.

(B) Placing and installation of cement fill and finish is largely dependent on the progress of other trades. This contractor therefore agrees to adjust his working force, as directed, on twenty-four (24) hours' written notice by the builder's superintendent.

(C) Notwithstanding the provisions in Article 4, Sheet 2 of the printed part of this contract, this contractor will follow the steel erector's completed work as provided above. Should temporary protection and temporary heat be required, such facilities will be provided by the contractor without expense to the builder.

(D) In the event of failure of the contractor to comply with the schedule outlined above, he shall at his own expense provide facilities whereby other trades will not be delayed, and he shall cover the costs, if any, if other trades are delayed, or he shall at his own expense catch up with the schedule.

(E) This contractor will furnish, erect, and maintain a complete and adequate system of exterior temporary elevator towers, platforms, cages and hoisting equipment therefor. On completion of the work as a whole, he shall remove this elevator equipment at such date as released in writing by the builder. It is agreed, however, that the builder may use such temporary elevator equipment from the

(F) Du
tion of h

BIG PERFORMANCE

Hauling tremendous 230-ton transformers over soft roadways demands equipment capable of tremendous performance. Such performance is found in this new super Mack tractor recently purchased by Gerosa Haulage and Warehouse Corporation, New York.

Gerosa, noted for taking on the biggest, toughest and most unusual hauling jobs, for years has successfully teamed up with Macks . . . and found them equal to any job tackled. Mack transmissions, famous for built-in quality and stamina, stand up to the most demanding jobs. And for unsurpassed pulling power under the most adverse conditions there is nothing comparable to the Mack-built Balanced Bogie with exclusive Power Divider.

Big dramatic job—every-day bread-and-butter job . . . whenever it must be done efficiently, dependably, with the least downtime, there's a Mack that will best fill the bill.

See your Mack branch or distributor for all the facts on the most complete line of heavy-duty trucks available today. Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

MACK
FIRST NAME FOR
TRUCKS

time of completion of the contractor's use of same for such period of time as the builder may desire, on condition only that the builder will take over the maintenance, operation, and rental costs, therefor, limited to the time for which the builder retains them, that is from the date he accepts them to the date at which he instructs the contractor to remove them.

It is agreed that the monthly rental rate for the builder's use of such equipment, subject to pro-ration of days of use, is $ . . . . per month. Provisions shall be made in the subcontractor's lease, if any, to protect the builder on this item.

(F) During the contractor's operation of his temporary elevator equipment, he will on 24-hour advance order, given in writing by the builder, do hoisting for the builder with the understanding that the charge per hour per shift, including the cost for men required for operation, will be $ . . . . , with the understanding that the minimum charge shall be based upon one (1) hour's use.

The time at which the builder may use the contractor's elevator equipment shall be at the discretion of the contractor. The contractor will endeavor to do such hoisting within regular working hours. However, if hoisting for the builder is done outside of the regular working hours, a charge in addition to the hourly rate will be made to cover the increased cost of overtime work equal to the overtime actually paid each workman at established rates for overtime, plus the actual cost for insurance and plus 10 per cent for profit.

(G) It will be the builder's intention to install one of the permanent elevators for temporary service within seven (7) days after the steel erection has been completed to the twenty-second (22nd) floor. Thereafter, such elevator may be used for the hoisting of the contractor's men without charge to the contractor. The builder assumes no guarantee in connection herewith except to undertake reasonably prompt repair in case of failure of service.

(H) Closely following the completion of steel erection to the twenty-second (22nd) floor, it will be the intention of the builder to have one of the permanent elevators equipped as a temporary material hoist. The contractor may have the use of this service at such time and on such terms as are satisfactory to the builder. In this connection, the builder will assume no guarantee other than to undertake reasonably prompt repair in case of failure of the service.

(I) Electric power may be obtained through the builder's temporary main feeders on condition that a satisfactory meter be installed by the contractor and that he pay for the power used.

(J) The builder will require the electrical contractor to provide temporary lighting facilities through outlet plugs for each floor, with reasonable means for control.

(K) The builder will require the plumbing contractor to provide a temporary water supply through a riser and/or a minimum of two (2) ¾-inch hose bibs for each floor up to the thirty-fifth (35th) floor.

(L) The services provided by the builder in "J" and "K" are limited to regular working hours. In case the contractor requires such service beyond regular working hours, there will be a charge made for the services equivalent to the cost at overtime rates, plus the cost for insurance, plus $ . . . . for overhead, plus $ . . . . for profit, covering the time of the service men required to control such service.

The same condition applies to the overtime use of power in connection with the use of either the builder's or contractor's elevators referred to in paragraph "E", "F", "G", and "H" herein.

(M) The contractor will make a receipt for any materials turned over to him and be responsible for them thereafter in case any such condition should arise.

(N) The form construction in general will be of the suspended and not of the posted type. If posting is resorted to, the arrangement shall be subject to the approval of the builder's superintendent.

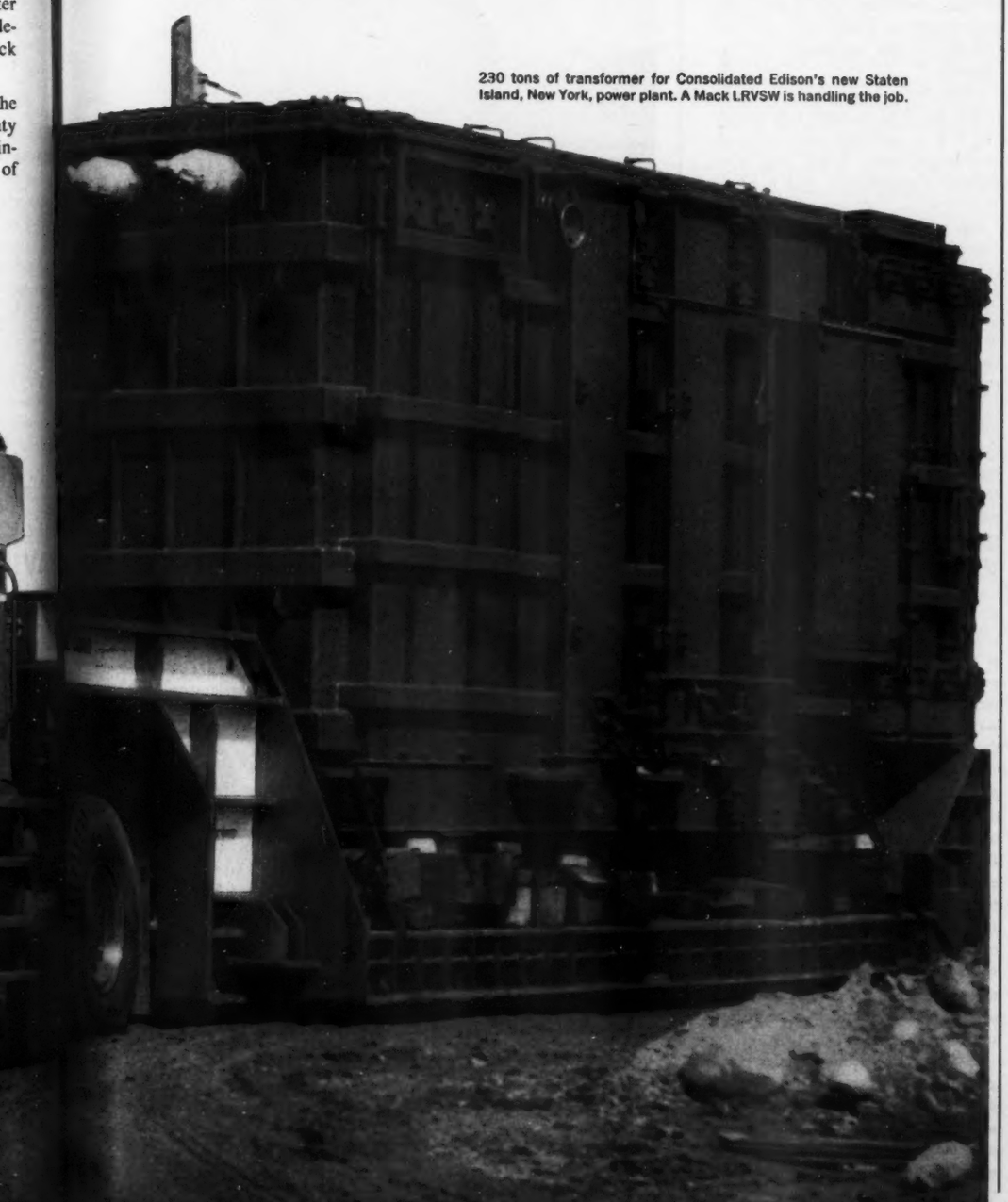
(O) At the option of the builder, the contractor will construct all of the sloped roof surfaces in the original specifications dated . . . . , pages . . . . to . . . . , plans dated . . . . , pages . . . . to . . . . prepared by . . . . for the lump sum price of . . . . ($ . . . .) dollars.

(P) The contractor agrees to promptly remove all forms on completion and as the work progresses to maintain a cleaned-up workable condition throughout the building by current removal of the debris and refuse resulting from his operations, including his own trucking service, and on failure to do so, the builder may at his discretion, without notice, have such cleaning work done and deduct from any amounts due the contractor.

The builder will provide a rubbish chute through which this contractor may dispose of his cleaning-up materials. The contractor will provide his own means of disposing of his form materials.

(Q) The specifications accompany-

ON THE *BIG* JOBS



230 tons of transformer for Consolidated Edison's new Staten Island, New York, power plant. A Mack LRVSW is handling the job.

←For more facts, circle No. 318

This is the forty-fourth of a series of articles on Construction Management by George E. Deatherage, P. E., consultant to National Schools of Construction, P. O. Box 510, Weiser, Idaho, and P. O. Box 8415, Charlotte, N. C. The articles are based on an eight-volume "Manual of Advanced Construction Management" published by the National Schools.

ing the drawings mentioned in Article 1 of Sheet 1 hereof are:

Fireproof floor construction, pages 1 to 10 inclusive, revised December 3, 1958.

Bulletin No. 1, pages 1 to 3 inclusive, October 3, 1958.

Bulletin No. 2, page 1, October 31, 1958.

Cement fill and finish, pages 1 to 7 inclusive, October 21, 1958.

(R) Before starting any work this contractor shall furnish to the builder a satisfactory surety company's performance bond in amount equal to fifty per cent (50%) of the contract price in Article 9, Sheet 3 hereof, the premium therefore to be in addition to the contract price.

(S) Wherein the provisions of this agreement differ from the provisions of the plans and specifications, the provisions of this agreement shall take precedence over plans and specifications.

Unit prices

The following prices are agreed upon for additions to and/or deductions from the work under this contract. These prices include all costs for labor, tools and equipment, insurance, overhead and profit, and shall remain in effect until the final completion and acceptance of the contract.

Cellar floor: 4-inch stone concrete, 1:3:5 mix with integral waterproofing, @ $.... per cubic yard. A 1-inch granolithic finish, 1:1½ mix, with integral waterproofing and a hardener, @ $.... per square foot.

Sidewalks and pavements: stone concrete fill, 1:3:5 mix, over screed coat or slabs already provided, @ $.... per cubic yard. A 1½-inch granolithic finish, 1:1½ mix, laid out in flags, @ $.... per square foot. Expansion joints @ $.... per linear foot.

On this job, the same form was followed for itemizing such things as preparation for tile, marble, and terrazzo floors, except in cellar; preparation for wood floors, not forming a part of structural arches; steel pan stair tread and landings; cement finish floors, etc.

Special notes—excavation

The following special notes concern a project in Boston where ground conditions were very bad and to a large extent undetermined. Ground water, not more than 8 feet below the surface, varied with the tides.

1. The subcontractor agrees to perform all work to construct the foundations to grade as called for on plans in accordance with specifications and further agrees to furnish a first-class complete job in every respect—materials, labor, equipment, supervision, fuel, and supplies—in fact, all items of every character required to carry the work to completion in a manner satisfactory to owner, contractor, and also to local building laws and ordinances.

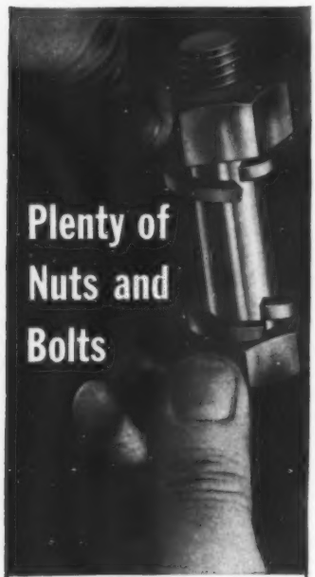
2. The price included under paragraph 21 is understood to cover all bulk and hand excavation, sheeting and shoring of banks, pits, trenches, etc., concrete for pits, trenches, pile caps, floors on earth, footings, walls to grade, backfill for basement floors, backfill, basement walls, grading, cement finish, setting all anchor bolts, inserts, reinforcing, etc., as called for and noted on plans and in accordance with specifications and necessary to complete the work above mentioned.

3. It is understood that the price given in paragraph 21 does not include the caisson work, neither the excavation or removal of same from the premises, any concrete work or any part of the work called for on plans or noted in specifications as caisson work. This will be let under another contract.

4. Waterproofing: no waterproofing is included under price quoted in paragraph 21, except that dense concrete as called for in specifications shall be used in all walls, pits, and trenches with the very best workmanship to insure a tight job. Proper keys with lead joints shall be used at all construction joints to eliminate possible leakage at these points. Subcontractor is to cut out all honeycombed, bad or porous spots in his concrete work, and point up in a satisfactory manner.

5. Additions and deductions to the work, as provided for under paragraph 3, shall be figured at the following rates: (Included in the list are shovel excavation in course of work; hand excavation; sheeting; concrete; reinforcing; forms; monolithic finish; backfill; anchor bolts; and surface finish.)

6. Schedule of work. It is understood that the subcontractor will cooperate to the fullest extent with



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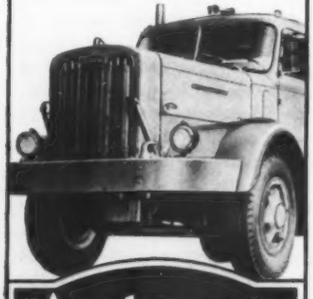
Nut and bolt assembly is far superior to the usual riveting and welding method in building a truck. It makes for more durable construction, lower maintenance and easier replacements in service. It is just one more quality characteristic that makes the Autocar "the world's finest".



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Austin-Western 5 to 8-ton tandem roller finishes under layment for Buffalo, N. Y., overpass on New York Thruway project.

No downtime—$50 maintenance for 3 years' rugged service from Austin-Western roller

—reports Bruner Asphalt & Construction, Inc., Buffalo, N. Y.

"We've put less than $50 into maintenance for our 3-year-old 5 to 8-ton Austin-Western tandem roller," says General Manager George Sheperd, Bruner Asphalt & Construction, Inc., Buffalo, N. Y.

"It can be relied upon for precision compaction on every job," he tells us.

Saves trailer rental costs

"The A-W roller travels under its own power. It has enough road speed to move from job to job . . . saving us minimum trailer rental costs of at least $40. It gets there just as fast as by trailer when you figure the time we would spend waiting for service then loading and unloading.

"It gears down nicely on the job to smooth and steady low speeds that help assure precision compaction. It's a dependable piece of equipment, too. We haven't had any downtime. The service and cooperation we receive from our local A-W distributor are excellent."

Full line of rollers

The Austin-Western variable weight rollers are designed for finest quality compaction. They are available in 5-8, 8-12 and 10-14 tons tandem—8-11, 10-12 and 12-14 tons with 3 wheels. Also offered is a versatile 3½ to 6-ton portable tandem roller.

For full information about this popular line of rugged variable weight rollers, contact your nearby Austin-Western dealer or write us today.

Austin Western 100th YEAR
CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

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Power graders • Motor sweepers • Road rollers • Hydraulic cranes

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other subcontractors on the work and especially the caisson contractor, to the point that the work of both parties can be harmoniously expedited to completion. With the above in mind, the attached schedule of operation has been agreed upon by the subcontractor and the caisson contractor as being the plan and manner by which construction sequences will be carried out. It is understood that the contractor will not be asked for extras on account of interferences from one contractor's work with another.

7. Pumping. It is understood that the subcontractor will do all pumping for his work and also keep the general excavation dry to a point 3 feet 6 inches below the finish basement and sub-basement floors for the convenience of himself and the caisson contractor. Caisson contractor is to do all pumping required for his work, conveying it to a point outside of the property.

8. Sidewalks. It is agreed that the placing of sidewalk or curb is not a part of this subcontract, but after walls are backfilled, the sidewalk area shall be left at the elevation of the bottom of the slab ready to receive the walk and cinder-fill according to the Boston Building Code.

9. Temporary fence. It is agreed that the subcontractor is to build and maintain, during the period of his work, an 8-foot fence around the three street sides of the property in a manner satisfactory to law and ordinance.

At the completion of his work, the fence is to be left in place and will become the property of the contractor. The contractor's general superintendent will locate lines on which the fence is to be built.

10. Lights and watchmen. The contractor is to install and maintain proper warning lights about such fence during the period of the work.

11. Permits. Occupation permits will be secured and paid for by the contractor.

12. Water supply. Installation of temporary water supply will be secured and paid for by the contractor.

13. Shoring and underpinning. Present information shows the footings of the building extend down to elevation minus 3.75, and no shoring or underpinning is thought to be required, and is not a part of this subcontract. If same is found to be necessary, the contractor will make a separate agreement for this part of the work, either with the subcontractor or some other competent person of the firm.

14. Changes. No changes shall be made in work covered by this subcontract without first obtaining written approval from the contractor's engineering department.

15. Excavation. It is agreed that subcontractor will excavate the site to a point 3 feet 6 inches below finish basement and sub-basement floors, at which point the caisson contractor will start his work.

16. Reinforcing. It is agreed that all reinforcing used will be from new billet steel according to specifications for this material.

17. One-shift operation. It is understood that subcontractor will confine his operations as much as possible to single shift daytime hours, and that all reasonable precaution be taken to reduce noise or vibration affecting the occupants of the building.

If pumps are used at night, they shall be steam pumps in order to eliminate noise from exhausts. Driving of sheeting shall be confined between the hours of 8 a.m. and 5 p.m., except in case of emergency.

18. In case of any conflict between the specifications and the subcontract, the subcontract shall govern.

19. The contractor reserves the right to specify the brand of cement used and to supply it or have it be supplied to the subcontractor at $\$\ldots$. per barrel, delivered on the job, and when required by the subcontractor.

There are some classes of work, such as in the fabrication of structural steel, where it is better to cover the work by a subcontract, rather than by a purchase order. Such subcontract types are not easily made to conform to standard forms, and are generally written on blank legal-size sheets.

(Next month's article will deal with "Purchasing: Cost-plus contracts.")

Construction Aggregates moves headquarters

The eleventh floor of 120 S. LaSalle Bldg., Chicago, is the new headquarters of Construction Aggregates Corp., earthmoving, land-reclamation, and construction firm.

AISC awards engineering scholarships to ten

Ten high school seniors have received $1,000 scholarships in civil and architectural engineering in the tenth annual scholarship program of the American Institute of Steel Construction. The winners were chosen on the basis of their grades in College Entrance Examination Board tests and their high school records as all-around students, including extracurricular activities.

Winners are: David L. Brooman; William P McCarthy, Jr.; Steven K. Pinney; Theodore Popowchak; Marvin I. Rozansky; Gary A. San Pietro; Gerald O. Seelos; Joseph F. Thelen; Joseph W. Tonweber; and Peter C. Williams.

Austin-Western hydraulic crane gently lowers a 3-ton block of concrete into place on flat bed truck.

Austin-Western hydraulic crane does anything . . . goes anywhere on $6,500,000 highway project

"It's fast, mobile and versatile. We use the Austin-Western hydraulic crane to do just about everything on the job," reports Norman J. Maggione, general superintendent and vice president of the Bero Construction Co., Waterloo, N.Y.

Two places at once

Bero's $6,500,000 project, a part of the Niagara section of the New York Thruway calls for six bridges in 1¼ miles. Mr. Maggione says, "We have one A-W crane on the job and wish we had more. Our job is split in sections by railroad yards and city streets. Because of their speed and mobility, the self-propelled, rubber-mounted A-Ws can just about be in two places at once.

"Using the A-W crane has doubled our speed in setting bridge panels. It maneuvers easily among tubular pilings and can turn on a dime. It has plenty of traction and power on any type surface.

Economical to operate, maintain

"We've got lots of economy right along with outstanding job performance. One man on an A-W can often do the work of four. We haven't had any maintenance problems.

"The A-Ws are radio-dispatched. People are always calling for one to get them out of a spot or to speed things up. It's the most versatile piece of equipment on the job!"

Learn more about this Model 210 hydraulic controlled precision crane with 18-ft. telescoping boom and 360° swing, all-wheel drive and steering. Contact your nearby Austin-Western distributor or write us today.

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HOW TO RUB or GRIND CONCRETE

Today, more and more builders specify a fine finish for concrete walls and ceilings. Because of this new requirement, and of the time and expense involved for hand finishing large areas, Stow Manufacturing Company has developed two easily portable flexible shaft grinders for finishing concrete. These grinders are electrically powered.

Two methods are used to smooth off hardened concrete: wet rubbing and dry grinding. Wet Rubbing—required for smoothing green concrete to a plaster-like finish. Use slow speed grinding wheel or disc. Apply water while grinding. Wet concrete can also be painted on with a brush, then smoothed into holes with the grinding wheel. Dry Grinding—use a high speed grinding wheel or abrasive disc to smooth dry concrete.

Either of Stow's portable, electric grinders, the ½ HP model G40-C or the ¾ HP model JT-50, can be used for wet or dry grinding. Both models are available with open or totally enclosed motors, and are equipped with 8 or 12-ft. flexible shafts. Angle heads with different speed ratios can be selected. Write for STOW's pamphlet, Grinding Concrete, for complete information on proper speeds, grinding discs and wheels for both wet and dry concrete finishing. Stow Manufacturing Co., Binghamton, N. Y. also makes a complete line of concrete vibrators, rotary trowels, and screeds.

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Grading a 6-mile section of U. S. 40 high in California's Sierra Nevada range calls for plenty of rock breaki and handling equipment. This battery of five Gardner-Denver Air Tracs with G-D 123 hammers is drilling a soli rock cut, sinking 3-inch-diameter holes 25 to 30 feet deep.

Tough rigs handle boulders, rock cuts

Large boulders such as this were hard to drill and shoot, and even after blasting, large pieces were left. This D8 uses two Gardner-Denver hydraulic booms to drill holes in one side of the boulder; four similarly equipped rigs were on the job.

Blasting out six miles of interstat highway through the solid roc mountaintops of the Sierra Nevad range in eastern California was spectacular but difficult construction operation. Gigantic boulders had to be drilled and shot, adding to the difficulties caused by deep hard-roc cuts, excessive ground water, and the 6,000 to 7,000-foot elevation.

Wood-Kirst Co., the joint-venture general contractor on the $5 millio grading and paving project, har nessed several of the mountain streams in the area to provide clever gravity water supply syste for all job needs. The joint-venture partners were Clyde W. Wood Sons, Inc., North Hollywood, and Kirst Construction Co., Altadena Calif.

Blasted rock is taken care of by Euclid end-dumps, one of which is being loaded at this spot by a Bucyrus-Erie 88-B. Some of the biggest chunks were pushed over the edge where they could be left.

Seven scrapers worked on the job, handling earth and loose rock. One of the three Euclid S-18's i the spread is push-loaded by a Cat D8 along this level stretch. The tractor in the background sloping the bank and dozing out some rock the scraper had to leave behind.

The project is a part of the Interstate Highway System, currently designated U. S. 40, crossing the high Sierras on the Donner Summit Route. A number of contractors have been at work for several years on a series of contracts planned and supervised by the California Division of Highways. The projects have been working up toward the summit from both east and west. This job, from Hampshire Rocks to a half mile west of Soda Springs, was located just west of the summit. The 6-mile job just about spans the 6,000 to 7,000-foot contour interval.

Included in the grading and drainage portion of the work was 1.2 million cubic yards of unclassified excavation, with cuts ranging up to 70 feet and fills over 60 feet high. Loose earth was the exception, with solid rock, loose rock, and boulders making up a large share of the yardage.

The contract called for the placing of more than 10,000 linear feet of culverts, ranging from 12 to 90 inches in diameter, in addition to an Armco Multi-Plate culvert 7.6 × 5.4 feet in section and 260 feet long. Numerous springs provided an excess of subsurface water that had to be handled by the installation of some 5,000 feet of 8-inch perforated metal pipe subdrains.

Seven bridges in the contract were sublet to Bo Son, Inc., Palo Alto, Calif. These were cast-in-place concrete T-beam structures for two interchanges and two river crossings.

Concrete pavement

The separated roadways will be paved with 8-inch concrete slabs, 24 feet wide, and flanked by 10-foot bituminous shoulders. The grading section is overlaid with a minimum of 1 foot of imported subbase material, with an additional 4 inches of cement-treated base under the concrete paving. Cut-and-fill slopes were flattened to 2 to 1 or flatter even in the rock cuts.

W-K used its own crews and equipment to clear the heavily timbered right-of-way. Homelite chain saws and the Caterpillar D7 and D8 tractors with winches handled most of this work. Merchantable timber was sold; brush was burned on the right-of-way.

(Continued on next page)

Power for night lighting in an area where a loading operation is being done, is supplied by a Kohler generator. The five big shovels on the project all worked double shifts.

Sloping the bank of a cut in this kind of material is a rough job, but a D8 hacks away with dozer and Ateco ripper. Crawler rigs on the job had plenty of work to do—pioneering cuts, cleaning up around shovels, push-loading scrapers, dozing fills, and dressing slopes.

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A mixture of loose rock and a little earth is loaded into a Euclid end-dump by a Bucyrus-Erie 54-B 2½-yard shovel. This area is being graded to accommodate a highway maintenance station.

(Continued from preceding page)

Concentrate on rock cuts

A spectacular layout of equipment was concentrated at the largest rock cut early in the work. Five 900 and three 600-cfm Gardner-Denver rotary compressors were assembled in a bank to supply seven Air Trac drills with Gardner-Denver 123 hammers and four Cat D8 tractors, each with two Gardner-Denver hydraulic booms. The eight compressors were lined up along the existing highway, which was about the only place available where they could be serviced.

The Air Trac drills handled the brunt of the work on the hard rock cuts, drilling from 10 to 50 feet deep in single lifts with 2¾ or 3-inch Timken carbide-insert bits. The tractors with hydraulic booms joined in drilling the rock cuts, but these rigs were especially effective on some of the huge boulders that had to be drilled horizontally. A dozen jackhammers and two Le Roi Tractair 125-cfm compressors were used in drilling some of the smaller boulders and in secondary drilling.

Holes were loaded with Atlas, Hercules, and Du Pont 60 per cent gelatin dynamite and detonated with Atlas delay caps. The granite rock was tough and did not shatter well. This made loading difficult and required some secondary shooting.

Five big shovels worked double shifts to load the rock into 17 Euclid end-dumps. The largest of the shovels was a new Bucyrus-Erie 88-B with a 4-yard bucket. The others were 2½-yard machines, two Bucyrus-Erie 54-B's and two Northwest 80-D's. Since naturally aspirated engines lose so much horsepower at this altitude, all of the shovel engines and some tractors and compressors were equipped with superchargers to bring their horsepower back up to about the sea-level rating.

Tractors play major role

Crawler tractors played very important parts in the work—pioneering cuts, cleaning up around shovels, push-loading scrapers, dozing fills, and dressing the finished slopes. W-K used 24 tractors on the grading—21 Cat D8's, a D9 and two International TD-24's.

Where the earth and loose rock could be handled by scrapers, a spread of three Euclid S-18's, three Cat DW21's, and a DW10 went to work. Pushed by the tractors, these scrapers loaded rock that looked like shovel material, in addition to any loose material that they were able to find.

On the fills, the rough rock from the hard rock cuts was worked along

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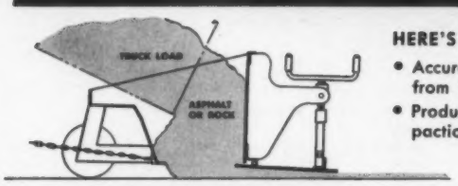

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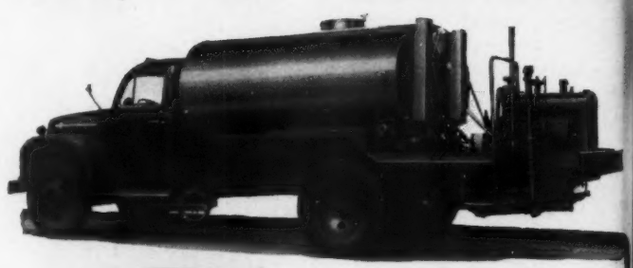

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Standard Steel Works, Inc. NORTH KANSAS CITY, MO.

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with loose material to make compact embankments. A Buffalo-Springfield Kompactor effectively worked down the loose materials, although it sometimes had a bit of trouble picking its way around the big rocks. Three Southwest sheepsfoot rollers towed by D8 tractors joined in compacting the fills.

Water supply by gravity

Wood-Kirst not only took the water supply from the several streams on the job site, but also put the water to work. Two 5,000-gallon water tanks were set up high enough on elevated stands so that water discharged by gravity into tank trucks. From these tanks, strings of Wade 6-inch aluminum pipe were laid up along the bank of the streams to a point that was high enough to provide gravity flow into the tanks. Small diversion dams at these points led the water into the pipes, and it flowed by gravity to the tanks.

The five 2,700-gallon tanks on International G.I. trucks were filled from the overhead tanks, but there was always time enough between loads to replenish the supply. Overflow pipes carried the excess water back into the stream when the tanks overflowed. This generous supply of clear cold water supplied the requirements for compaction of the grade and subbase, as well as mixing water for the cement-treated base and concrete pavement.

Subbase and base

Materials for the subbase and base were produced on the site. (See "Aggregate Setup Produces Variety of Materials for Paving Operation," C&E, April, 1959, page 74.) Working under a subcontract, J & F Trucking Co., Pacoima, Calif., hauled the aggregates from the plant to the grade in a fleet of 25-ton bottom-dump truck-trailer rigs. The minus 3-inch subbase material was spread on the grade in two lifts, bladed, watered, and rolled.

At present, base and paving are being put down. The four-inch lift of cement-treated base is being mixed on the road with a Wood Roadmixer, shaped to grade by a Cat 12 motor grader, and compacted by a Tampo self-propelled rubber-tire roller and three-wheel rollers.

In addition to the main spreads of equipment, there were a number of other machines on the project, including a Hough 3-yard Payloader, a Bucyrus-Erie 22-B crane and a 22-B backhoe, a Lorain Model 41 backhoe, and a Northwest Model 25

(*Continued on next page*)

A Buffalo-Springfield Kompactor works effectively where loose material was used in fills. To build up stable fills, the contractor had to keep mixing available loose material with the rock.

TRANSPORT TRAILERS, DELIVER

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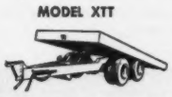


Tandem axle tilt trailer (tow type), capacities 13 through 20 tons.

MODEL PTX

Heavy-duty tandem axle with adjustable bolsters. Telescopes from 16' to 30' from tractor.

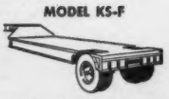
MODEL PX

Heavy-duty tandem axle, spring mounted platform or float.

MODEL GPX

Tandem axle. Capacities 16 through 35 tons. Drop deck or flat deck.

MODEL KS-F



Single axle flat bed semi, capacities 10 through 20 tons. Drop deck or flat deck.

MODEL GXTT

Gooseneck type, tandem axle tilt-trailer. Capacities 14 through 22 tons.

MODEL MSO-D

Multiple axle drop bed semi, capacities 35 through 75 tons. Drop deck or flat deck.

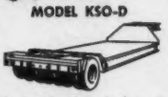
MODEL T-8-18

14 or 18 foot length between the wheel tilt trailer. 8-10 ton capacity.

MODEL GTX

Triple axle, 6 dual wheels. Capacities 25 through 45 tons. Flat or drop deck.

MODEL KSO-D

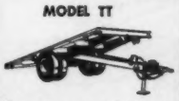


Dual axle drop bed semi, capacities 15 through 30 tons. Drop deck or flat deck.

MODEL GPR

Removable gooseneck. Tandem, triple or trunnion axles. Flat or drop decks, or as beam trailers.

MODEL TT



Heavy-duty tilt trailer. Capacities 6, 8 and 10 tons.

MODEL PX-O

Heavy-duty, self-loading tandem axle oil field float.

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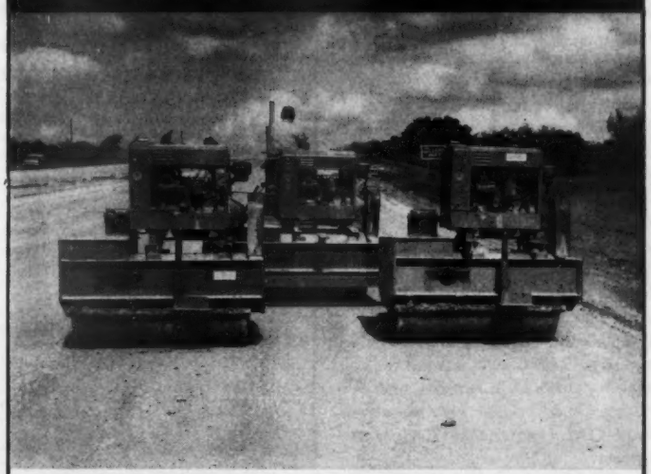
ESSICK

VIBRATING COMPACTORS



COSTS DOWN—COMPACTION UP!

WITH ESSICK 54" VIBRATING COMPACTOR

CONTRACTOR REPLACES EQUIPMENT WORTH $67,200 AND DOUBLES PRODUCTION RATE—WITH HIGHER DENSITIES—FEWER PASSES—HIGHER LIFTS

On Texas State Highway 180, Fred Hall & Sons Contractor, were using two Model M tractors, three 10 ton pneumatics, one 3 wheel 10 ton roller, one 50 ton self propelled pneumatic, and one blade to compact crushed limestone with four different clay contents varying from 10% to 15%. They were having considerable trouble getting densities with 2" lifts and many passes of the 10 ton pneumatics, the 50 ton pneumatic on the third lift of 6", and a slushing and final rolling with the three wheel roller to slick off.

Three Essick VR-54 (54") Vibrating Compactors in triplex hook-up made two passes on the full six inch lift, with one more fast pass after a water slush to slick off. They got the required density of 140 pounds to the cubic foot, and increased material laid to twice the amount laid before. The three 54" Vibrating Compactors in triplex replaced $67,200 worth of other equipment—reduced operating costs—and doubled the rate of production.

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9 models of Vibrating Compactors from 13" to 72" widths

for compacting all types of fills, sub base, base materials, asphalt and trenches

Also 14 Models of Tandem Rollers from ½ to 14 Tons.

SEE YOUR ESSICK DEALER FOR A DEMONSTRATION ON YOUR JOB

ESSICK MANUFACTURING COMPANY

1950 Santa Fe Avenue, Los Angeles 21, California

850 Woodruff Lane, Elizabeth, New Jersey

Affiliated with THE T. L. SMITH CO., Milwaukee, Wisconsin

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A mixture of loose rock and a little earth is loaded into a Euclid end-dump by a Bucyrus-Erie 54-B 2½-yard shovel. This area is being graded to accommodate a highway maintenance station.

(Continued from preceding page)

Concentrate on rock cuts

A spectacular layout of equipment was concentrated at the largest rock cut early in the work. Five 900 and three 600-cfm Gardner-Denver rotary compressors were assembled in a bank to supply seven Air Trac drills with Gardner-Denver 123 hammers and four Cat D8 tractors, each with two Gardner-Denver hydraulic booms. The eight compressors were lined up along the existing highway, which was about the only place available where they could be serviced.

The Air Trac drills handled the brunt of the work on the hard rock cuts, drilling from 10 to 50 feet deep in single lifts with 2¾ or 3-inch Timken carbide-insert bits. The tractors with hydraulic booms joined in drilling the rock cuts, but these rigs were especially effective on some of the huge boulders that had to be drilled horizontally. A dozen jackhammers and two Le Roi Tractair 125-cfm compressors were used in drilling some of the smaller boulders and in secondary drilling.

Holes were loaded with Atlas, Hercules, and Du Pont 60 per cent gelatin dynamite and detonated with Atlas delay caps. The granite rock was tough and did not shatter well. This made loading difficult and required some secondary shooting.

Five big shovels worked double shifts to load the rock into 17 Euclid end-dumps. The largest of the shovels was a new Bucyrus-Erie 88-B with a 4-yard bucket. The others were 2½-yard machines, two Bucyrus-Erie 54-B's and two Northwest 80-D's. Since naturally aspirated engines lose so much horsepower at this altitude, all of the shovel engines and some tractors and compressors were equipped with superchargers to bring their horsepower back up to about the sea-level rating.

Tractors play major role

Crawler tractors played very important parts in the work—pioneering cuts, cleaning up around shovels, push-loading scrapers, dozing fills, and dressing the finished slopes. W-K used 24 tractors on the grading—21 Cat D8's, a D9 and two International TD-24's.

Where the earth and loose rock could be handled by scrapers, a spread of three Euclid S-18's, three Cat DW21's, and a DW10 went to work. Pushed by the tractors, these scrapers loaded rock that looked like shovel material, in addition to any loose material that they were able to find.

On the fills, the rough rock from the hard rock cuts was worked along

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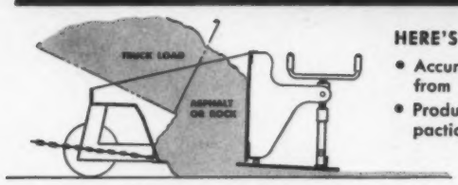

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- Eliminates wheel and shoe marks, practically no raking required!
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- Low investment, negligible maintenance cost!
- 3 basic models—9'6" Base Paver, 8'6" or 9'3" standard Rola-Paver, and new 8' light weight (950 lb.) model.

FAST BASE SPREADING, TOO!
Spreads base materials in up to 8" depths with exceptionally accurate control, at rates up to 200 tons per hour (crusher-run base).

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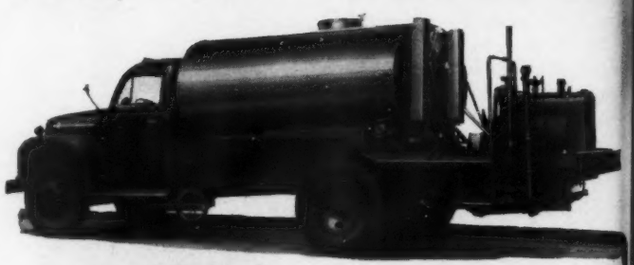

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The Model 424-56 is built in 1000, 1250 and 1500 gallon capacities as standard and can be furnished in other capacities, either truck or semi-trailer mounted.

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with loose material to make compact embankments. A Buffalo-Springfield Kompactor effectively worked down the loose materials, although it sometimes had a bit of trouble picking its way around the big rocks. Three Southwest sheepsfoot rollers towed by D8 tractors joined in compacting the fills.

Water supply by gravity

Wood-Kirst not only took the water supply from the several streams on the job site, but also put the water to work. Two 5,000-gallon water tanks were set up high enough on elevated stands so that water discharged by gravity into tank trucks. From these tanks, strings of Wade 6-inch aluminum pipe were laid up along the bank of the streams to a point that was high enough to provide gravity flow into the tanks. Small diversion dams at these points led the water into the pipes, and it flowed by gravity to the tanks.

The five 2,700-gallon tanks on International G.I. trucks were filled from the overhead tanks, but there was always time enough between loads to replenish the supply. Overflow pipes carried the excess water back into the stream when the tanks overflowed. This generous supply of clear cold water supplied the requirements for compaction of the grade and subbase, as well as mixing water for the cement-treated base and concrete pavement.

Subbase and base

Materials for the subbase and base were produced on the site. (See "Aggregate Setup Produces Variety of Materials for Paving Operation," C&E, April, 1959, page 74.) Working under a subcontract, J & F Trucking Co., Pacoima, Calif., hauled the aggregates from the plant to the grade in a fleet of 25-ton bottom-dump truck-trailer rigs. The minus 3-inch subbase material was spread on the grade in two lifts, bladed, watered, and rolled.

At present, base and paving are being put down. The four-inch lift of cement-treated base is being mixed on the road with a Wood Roadmixer, shaped to grade by a Cat 12 motor grader, and compacted by a Tampo self-propelled rubber-tire roller and three-wheel rollers.

In addition to the main spreads of equipment, there were a number of other machines on the project, including a Hough 3-yard Payloader, a Bucyrus-Erie 22-B crane and a 22-B backhoe, a Lorain Model 41 backhoe, and a Northwest Model 25

(*Continued on next page*)

A Buffalo-Springfield Kompactor works effectively where loose material was used in fills. To build up stable fills, the contractor had to keep mixing available loose material with the rock.

TRANSPORT TRAILERS, DELIVER

THE QUALITY LINE OF DEPENDABLE TRAILERS FOR EVERY HAULING NEED!

MODEL GXTT

Gooseneck type, tandem axle tilt-trailer. Capacities 14 through 22 tons.

MODEL MSO-D

Multiple axle drop bed semi, capacities 35 through 75 tons. Drop deck or flat deck.

MODEL T-8-18

14 or 18 foot length between the wheel tilt trailer. 8-10 ton capacity.

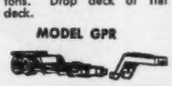
MODEL GTX

Triple axle, 6 dual wheels. Capacities 25 through 45 tons. Flat or drop deck.

MODEL KSO-D

Dual axle drop bed semi, capacities 15 through 30 tons. Drop deck or flat deck.

MODEL GPR



Removable goosneck. Tandem, triple or trunnion axles. Flat or drop decks, or as beam trailers.

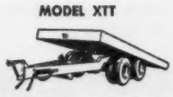
MODEL TT

Heavy-duty tilt trailer. Capacities 6, 8 and 10 tons.

MODEL PX-O

Heavy-duty, self-loading tandem axle oil field float.

MODEL XTT



Tandem axle tilt trailer (tow type), capacities 13 through 20 tons.

MODEL PTX

Heavy-duty tandem axle with adjustable bolsters. Telescopes from 16' to 30' from tractor.

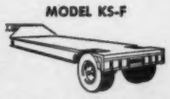
MODEL PX

Heavy-duty tandem axle, spring mounted platform or float.

MODEL GPX

Tandem axle. Capacities 16 through 35 tons. Drop deck or flat deck.

MODEL KS-F



Single axle flat bed semi, capacities 10 through 20 tons. Drop deck or flat deck.

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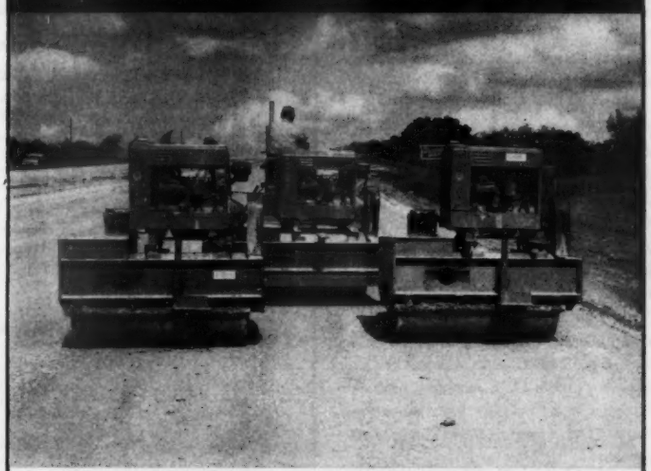

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One of the three lube trucks on the job greases a D9 in the field. Six Lincoln reels and pumps, an air compressor, and a Kohler generator for lighting and for power tools are carried by the truck.

crane. Three lube trucks provided daily service in the field to each piece of equipment. Fuel was supplied by Standard Oil Co. of California, which maintained three fuel trucks on the job and kept a 10,000-gallon bulk tank on the site for diesel-fuel supply.

Tire service for units with pneumatic tires was supplied by Firestone Tire & Rubber Co., which had a service rig and a supply of spares on the job at all times.

Joint project managers of the project are Frank Wood and Jim Kirst, the respective presidents of the joint-venture firms. Other supervisors on the job include superintendent Andy Weesner, project engineer Lou Barba, office manager Tom Condon, and drilling superintendent Jess Robinson.

Representing the California Division of Highways are resident engineer Lee R. Hawkes, assistant resident engineers D. E. Currier and V. Finley, and bridge representative Harry Dobrovolny. The field staff reports to district engineer Alan S. Hart of the Marysville District. George T. McCoy is California state highway engineer. THE END

HRB bulletins on highway laws, soil stabilization

The Highway Research Board, 2101 Constitution Ave., Washington 25, D. C., has issued Bulletin 204, "Asphalt-Soil Stabilization," and Bulletin 205, "Highway Laws-1958."

The first bulletin discusses the drying phase of soil-asphalt construction, and describes a laboratory study indicating that soils stabilized with cutbacks must be dried out before compaction to provide high initial strength, and that after compaction additional curing results in even more strength. The second paper in the bulletin contains data on the improvement of asphalt-stabilized fine-grained soils with chemical additives. This bulletin costs $1.

Bulletin 205 contains a report of the HRB committee on highway laws; a program of highway research at the University of Wisconsin; the law and highway modernization; and the control of access and police power. The price of this bulletin is 80 cents.

Both bulletins may be purchased from HRB headquarters.

Divers drill in bedrock for pier foundations

Divers working in 48 to 65 feet of rough water recently bored 5-foot holes in granite bedrock to secure foundations for two dolphin piers on the southeast side of Texada Island, 85 miles north of Vancouver, B. C., Canada.

Universal Diving, Ltd., Vancouver, the drilling contractor, had to bore ten 8-inch-diameter holes, located accurately within a maximum tolerance of 3 inches. To drill from the surface with accuracy would have been practically impossible and very costly. The underwater job was completed to within one inch of the specifications with a Truco Model E portable diamond drill and Tru diamond drill bits. This accuracy w exceptional, considering that visibility was nil, and the gr granite bedrock was badly fractur due to previous blasting and a rece earthquake. The largest core tained was only 6 inches long.

Because of the bedrock's ste grade, divers had to build a concre platform, 6 inches larger than t base of the drill, at each hole a The machine was then set on t platform, and a chain, anchored wi two lewis pin holes, was placed ov the top of the column to anchor Drill-hole centers were located

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COUNT ON EXTRA PERFORMANCE WITH THESE SPOTLIGHT FEATURES

BALANCED LIFTING—Integral construction of lift arms and torque tube eliminates damaging "one-arm" stresses . . . insures equal lift on both arms even during hillside dumping or with unbalanced loads.

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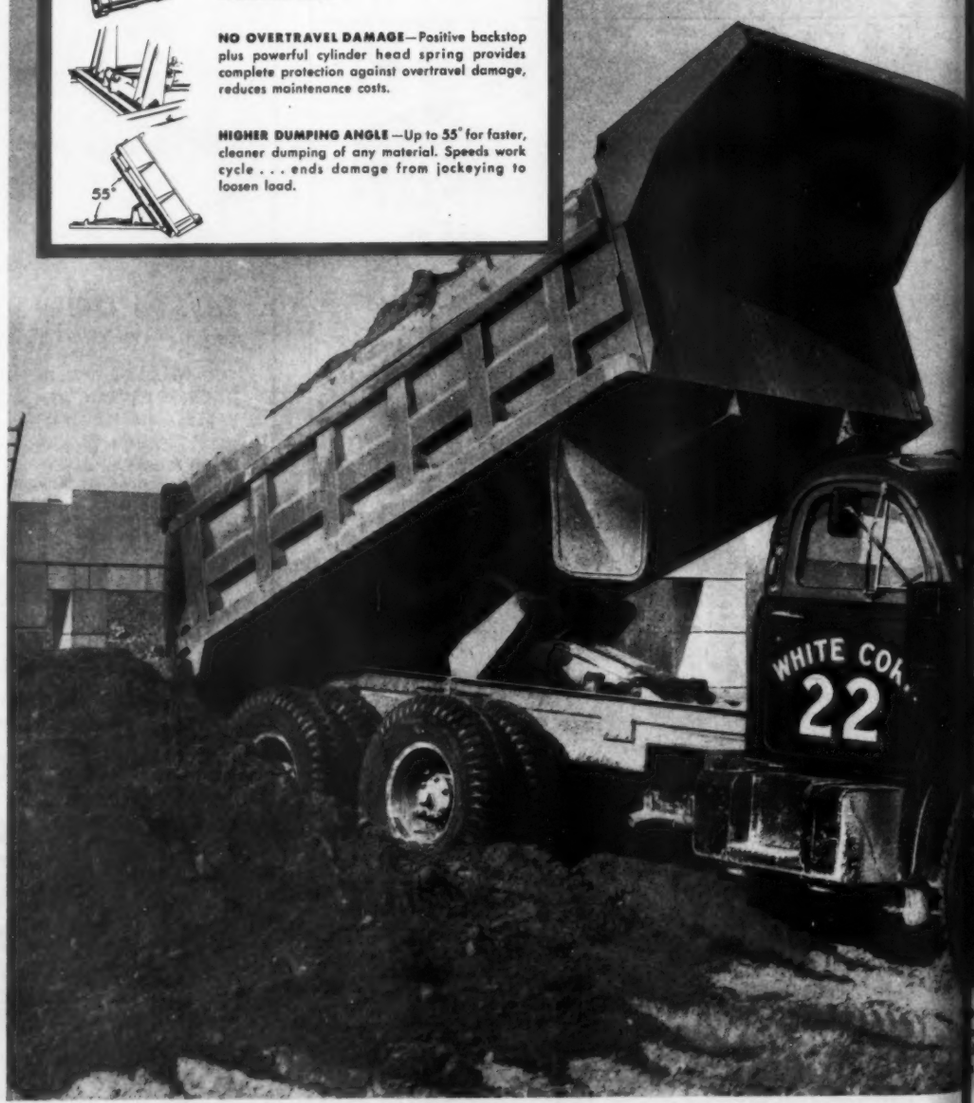
HIGHER DUMPING ANGLE—Up to 55° for faster, cleaner dumping of any material. Speeds work cycle . . . ends damage from jockeying to loosen load.



instruments and templates. The weather was so bad at the time that the drill had to be brought to the surface at the end of each day.

The Truco Model E drill was powered by a 300-rpm air motor. Four 8×42-inch Truco diamond bits completed the drilling with only about 4 inches being cut with the fourth bit. Actual drilling time for 5 feet was 1 hour and 29 minutes. A high-pressure jet pump fed water to the bit, and a 225-cubic-foot compressor supplied power for the drill. The crew consisted of one diver and two helpers.

The new piers are anchored strongly enough to withstand the strain of loading scows carrying 31,000 tons of rock.

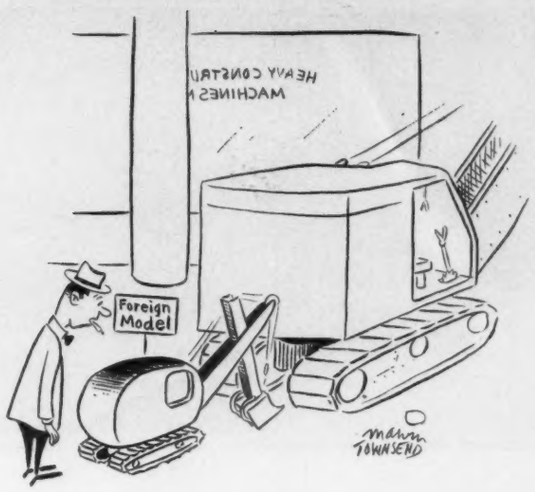
Universal Diving reports that the underwater work was faster, more accurate, and cheaper than drilling from a rig mounted on a scow, and that such drilling is practical at depths up to 200 feet.

Cunningham-Limp names two division managers

The designing, engineering, and building firm of Cunningham-Limp Co., Detroit, has opened offices in New York City and Chicago.

Harold C. Potter has joined the company as manager of the Eastern Division, with offices in Canada House, 680 Fifth Ave., New York City.

Edward Bergman will be in charge of the Chicago division, with headquarters at 5835 W. North Ave. in that city.



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It's the most advanced and complete line of arm-type, front-mounted and under-body-mounted telescopic hoists, with matching bodies for every job requirement. Your nearby distributor can demonstrate why you can be sure of dependable, economical performance when you specify Gar Wood - St. Paul truck equipment.

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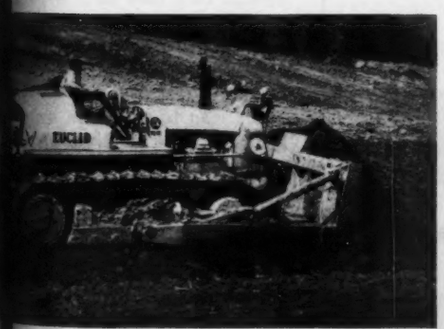
GAR WOOD EXCAVATORS excel in on-the-job versatility. They feature a compact machinery deck that puts all adjustments up front, easy to see and reach; independent chain crowd that means more power into every "bite" and easy convertibility for every job requirement; plus independent travel to let you hoist and swing while moving.



OD TRACTOR EQUIPMENT is engineered for trouble-free rce under the biggest and heaviest loads. Gar Wood equip- ludes front- and rear-mounted cable control units, Tipdozers, ers and Rippers, all matched to rugged Euclid Tractors.

Gar Wood
INDUSTRIES, INC.
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Travel in urban areas covered in HRB bulletin

"Travel Characteristics in Urban Areas," Bulletin 203 from the Highway Research Board, contains seven papers. Data is given on travel characteristics of two San Diego, Calif., subdivision developments; factors affecting trip generation of residential land-use areas; and forecasting peak hours of travel.

Also covered are transportation usage; evaluating trip forecasting methods with an electronic computer; center-city goods movement; and travel patterns in 50 cities. Tables, charts, graphs, and formulas supplement the text.

Priced at $2.60, the bulletin may be purchased from the HRB, 2101 Constitution Ave., Washington 25, D. C.

Armco subsidiary awards engineering scholarship

The 1959 Armco International Corp. scholarship for foreign students has been awarded to Luis E. Bartol of Montevideo, Uruguay. The cooperative engineering scholarship at the University of Cincinnati, based on competitive examinations administered by the university, is available only to sons of AIC's foreign employees.

The $1,600 award will pay Bartol's expenses during the first year of the 5-year cooperative course. Under the work-study plan, students alternate seven weeks of classroom work with seven weeks on a job during their final four years at the university. The AIC scholarship carries with it the promise of employment in an Armco plant during the work periods.

AIC is a subsidiary of Armco Steel Corp., Middletown, Ohio.

NCPM elects officers

Four officers of the National Clay Pipe Manufacturers, Inc., have been re-elected. They are: G. A. Robinson, president; A. J. Reed, vice president and director of research; D. M. Strickland, vice president and consultant to the board; and R. G. Scott, treasurer. A. G. Cochran has been elected secretary.

A crane, a front-end loader, and two dump trucks built this sheltered harbor on the Nevada shore of Lake Tahoe for boats being launched or picked up. Rocks on the exterior of the breakwater protect against wave action. Concrete mats provide launching ramps. Sand at the water line has been deposited by wave and eddy action.

(Additional photo on front cover)

Small crew builds boat landing ramp

Construction of a stone breakwa and a boat launching ramp on t Nevada shore of beautiful Lake Ta high up in the Sierras was a relativ small project, but it has been a t mendous boon to the fishermen a boating enthusiasts of the area.

General contractor P. W. Bur Reno, used a crew of four or fi workmen equipped with an Ins ¾-yard dragline, a Hough HH P loader equipped with a Drott 4 in bucket, and two International du trucks. This crew did the entire j except for the casting of concr mats for the ramp. These were c on the site by A. B. McPherson, Reno building contractor and one the most enthusiastic backers of t project.

Lake Tahoe, a large, deep l nestling in the Sierra Nevada mou tains on the California-Nevada bo der, has a normal water surfa 6,228 feet above sea level. Its cl cold waters provide good fishi which, together with its boating a bathing attractions, makes the l one of the region's favorite rea areas.

For many years, Nevada sportsm have been working to get a bo launching facility on the shore l within their state. Two obstac stood in their way. First, the sh line was either privately owned was too rugged for the construct of a ramp. Secondly, no group governmental agency seemed to ha the money to finance the project.

Tunnel excavation provides rock

The first break came when Nevada Department of Highwa constructed a second roadway tun through Cave Rock on U. S. 50 n the southwest corner of the la Some of the rock from the tun excavation was used to build a pub parking area at the lakeshore and a access road leading down the ste bank.

Seeing the opportunity, the W shoe Rod and Gun Club, the Coun Game Management Board of Wash County, the Desert Boat Club, a other sportsmen's organizations Ormsby and Douglas counties join forces under the leadership of A. McPherson and pooled all the mon they could raise as a sponsor's sha of the project. Through the Fish a Game Commission of Nevada, t project received some state fun

Designed to new engineering standards

CROSBY-LAUGHLIN Load-Rated* HOOKS

give you highest capacity per size

- 100% drop forged . . . heat treated
- Guaranteed not to break
- Most complete line, carbon or alloy steel
- Working capacity and identification forged on every hook

Easily converted to safety hook at any time

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AMERICAN HOIST AND DERRICK COMPANY
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Manufacturers of Crosby Clips and "Load-Rated" Blocks . . . Crosby-Laughlin "Load-Rated" Fittings . . . Lebus Load Binders and Snatchblocks.

Buy Genuine Crosby-Laughlin . . . the hooks that are painted red. *trademark

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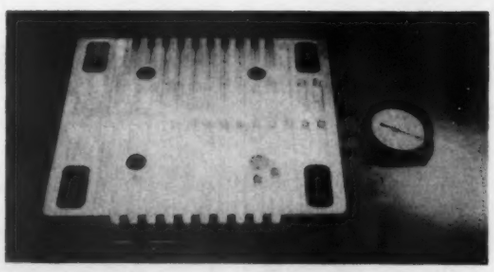
WEIGH VEHICLES UP TO 140,000 LBS. PER AXLE WITH HEAVY DUTY "M-1" LOADOMETER

NEW — PORTABLE — ACCURATE — SELF CONTAINED — DURABLE SCALE

The RIGHT Answer To The Heavy Duty Weighing Problem For Off Highway Vehicles On EARTH WORK AND MATERIAL HAULING.

Capacity 70,000 lbs.
30,000 kilos

Specifications on request



LOADOMETER CORPORATION, BALTIMORE 11, MD.

For more facts, use Request Card at page 18 and circle No. 330

The Payloader dumps breakwater material into one of the two International dump trucks on the job. Concrete mats, right background, will be used to pave the boat ramp into the water.

Versatile tractor shovel and dragline are key machines for building rock breakwater and launching ramp

and became eligible for federal aid under the Dingle-Johnson Act.

Plans were prepared by the Nevada Fish and Game Commission and bids were taken, but the one bid received —amounting to $11,200—exceeded the estimated funds by $4,400. The bid price was high primarily because it was felt that the breakwater would be constructed from a barge working in the lake, and all barge operators were busy on other projects. Investigations also showed this to be the main reason why other contractors did not show an interest in the work.

With the single bid rejected, McPherson came to the front again. This time, agreeing to produce the concrete mats with his own crew, he talked his friend Porter W. Burge into doing the work at cost, provided that available material could be obtained within reasonable hauling distance from the site. This got the project under way.

Burge had to do the job economically, and his choice of equipment and methods was important. The two key pieces of equipment he selected were the Hough Payloader with Drott shovel and the Insley crane.

Rock for the breakwater was available in the waste from the tunnel excavation, but it had to be pulled down from a high steep bank and moved about 500 feet across the paved parking area. The dragline first pulled a quantity of the rock down off the bank so that the Payloader could pick the material up and load it into the trucks. The two International trucks shuttled the rock across the parking area, dumping the material at the breakwater location.

Chain grapple for rocks

The crane and the Payloader then moved to the breakwater to place the rock. The larger pieces of rock, weighing 3 to 5 tons, were placed at the outer edges of the breakwater in water that ranged up to 18 feet deep. Then smaller rocks were filled in to build the solid pyramidal section.

Since they did not have a rock grapple on the job, Burge's crew came up with an ingenious device for handling the big rock. They shaped a piece of ⅞-inch steel into a ring about 8 inches in diameter and attached four 8-foot lengths of ⅜-inch

(*Continued on next page*)

TEAMED UP FOR *Faster* INSTALLATION

NAYLOR Spiralweld pipe and NAYLOR one-piece Wedgelock couplings give you just what it takes to make up dependable lines in a hurry.

The lightweight of the pipe simplifies handling and assembly, while the simplicity of the Wedgelock coupling provides the fastest, most economical method of pipe connection available today.

Whether you need lines for handling water, fresh air or air under pressure, it will pay you to consider the extra performance of this NAYLOR combination.

Write for Bulletin No. 59 for pipe and coupling information.

The NAYLOR Heavy-duty Wedgelock coupling makes a positive connection—can not slip out of standard weight grooved ends. A hammer is the only tool required to connect or disconnect it. Low-pressure type also available.

NAYLOR PIPE Company

1270 East 92nd Street, Chicago 19, Illinois

Eastern U. S. and Foreign Sales Office: 60 East 42nd Street, New York 17, N. Y.

For more facts, use Request Card at page 18 and circle No. 331

(Continued from preceding page)

Rock for the breakwater project was provided by excavation from the new highway tunnel, background. Excavation was also used to build the generous parking area at the site.

chain to the ring. Each chain terminated in a hook. The ring was then attached to the crane's load line.

By wrapping the four chains around the large rocks, the men found they could quickly and easily handle pieces of almost any shape or size. The device has worked so well that Burge now uses it to set sew manholes, remove rocks from bas ment excavations, and do other jo that have always been troublesom

The Payloader cooperated in th operation, pushing the big roc around and lifting them so that th men could get the chains in place. conventional clamshell bucket wa also used to place the rock.

Excavate ramps

With the big rock in place for th base of the breakwater, the draglin with a Hendrix ¾-yard perforat bucket began the underwater exca vation for the launching ramps, cas ing the excavated material onto th breakwater. This material was mostl rock with some sand and gravel. Th ramp was graded wide enough fo two parallel 12-foot roadways an was carried out 100 feet from th water's edge.

Using a clamshell bucket, the In sley then placed a blanket of 6 to inches of gravel on the graded ramp Since the work muddied up the other wise crystal-clear water, this under ground grading had to be done partl by "feel," taxing the operator's ski and ingenuity.

Casting mats

While the excavation was in prog ress, McPherson's crew was castin the concrete mats for paving the in clined ramps. Forms with corrugate iron bottoms and plank sides wer arranged in a set in which 20 of th mats could be cast at one time. Each mat is 14 inches wide, 6 inches thick and 12 feet long, and is reinforce with three ½-inch bars.

About 18 inches from each end o each mat, a ½×3-inch steel bar wa cast into the mat so that it projecte about 4 inches out on each side These bars were bolted together wit ¾-inch galvanized bolts to hold th mats together as they were placed.

The corrugated-metal form bot toms produced a corrugated surfac on the concrete. As the mats wer placed, this side was turned u to provide firm traction for cars tha back down the ramp to load and un load boats.

McPherson re-used the set of form seven times, producing a total of 14 mats. The crew used a boom and hoist mounted on the front of pickup to remove the mats from th forms and place them in stockpile Ready-mix concrete was delivere from Carson Ready Mix in trans mixers.

Placing the mats

The Payloader and the dragli were again called on to work togeth to place the mats. The Payloa brought the mats from the stockp and placed them in front of the dra line, which stood just above water line on the ramp. Several the mats were bolted together un the set reached out into the wa The line from the crane boom w then attached to the outermost ma and the crane slid the series out i the water. Another set of mats w

27 SELF-PRIMERS

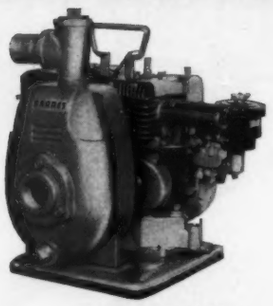
...and Barnes pumps prime without fail!

27 versatile models meet most construction needs—designed for any power source—deliver 2500 to 90,000 gph—available from one source of supply nearby!

You get the ultimate in reliable self-priming when you standardize on Barnes *Blue Ribbon Quality* pumps!

Barnes exclusive self-priming principle for centrifugal pumps incorporates a *free passage vent* adjacent to the periphery of the impeller. It defies clogging. *It primes without fail*—even with as little as ⅓ normal water level in the pump!

In your business, the chief test of any pump is in the years of continuous, low-cost operation it delivers. That is where Barnes self-primers stand out because every model is proved in our Blue Ribbon Quality Test Booth *before* entering the field! Ask your Barnes distributor for handy Construction Pump Selector #238—or write to us. Address Dept. B-79.



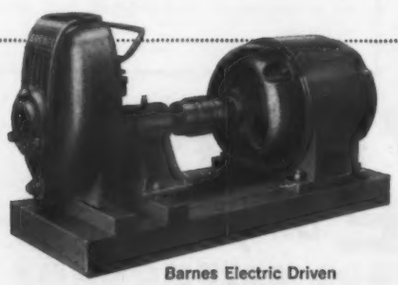
Barnes Engine Driven "Lightweight" Pumps

Barnes Universal Drive Centrifugal Pumps

Barnes Engine Driven 2 and 4 Wheeled Pumps

BARNES

Barnes Manufacturing Co.
Mansfield, Ohio



Barnes Electric Driven Centrifugal Pumps

Specify Barnes Blue Ribbon Quality ... it pays off!

5860-A

For more facts, use Request Card at page 18 and circle No. 332

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bolted to the first, and the process was repeated. In this way the entire underwater portion of the ramp was paved.

When the crane had pulled all of these mats out into place, additional mats were added to the shore end to carry the pavement up well above the water line. The balance of the ramp and part of the top of the breakwater were paved with bituminous concrete that was shaped and spread by the Payloader.

The day after the work was completed, the area was hit by a very severe windstorm, and waves broke completely over the breakwater, which is about 8 feet above normal water level. The newly completed project withstood the storm without damage. It is now one of the busiest spots on the lake, especially on weekends when hundreds of boats are launched by sportsmen celebrating the completion of a long awaited project.

Personnel

P. W. Burge gave the job his personal supervision, visiting it three or four times a week. However, he explains, "My men are all thinkers. They are used to being on their own without supervision." A. B. McPherson also supervised his own crews on the mat construction operation.

The project was inspected for the Fish and Game Commission of Nevada by Howard Garratt. The engineer for the Fish and Game Commission at Reno is Delmer S. Davis.

THE END

Mahony-Troast to build plant for Duradex

Mahony-Troast Construction Co., Clifton and Camden, N. J., will erect a 27,000-square-foot office and manufacturing building for Duradex, Inc., Brooklyn, N. Y. Located on a 2-acre plot on Main Avenue, near Route 3 in Clifton, the plant will be built by the lift-up precast-concrete-wall method devised by Mahony-Troast.

Engineering firm formed

Colton, Kool & Associates has been formed to practice consulting engineering in all branches of engineering. The firm is located at 507 Marion Bldg., 1276 W. Third St., Cleveland 13, Ohio.

Architect, builder, owner of AGC building honored

The Washington, D. C., Board of Trade has presented its biennial awards to the architect, builder, and owner of the new national headquarters building of The Associated General Contractors of America. The awards went to Chatelain, Gauger & Nolan, Washington, the architect; Joseph F. Nebel Co., Washington, the general contractor; and the Associated General Contractors.

Located at 20th and E Streets N. W., the building was formally opened in June, 1958.

The Drott 4-in-1 bucket of the Hough HH Payloader cradles a large rock on the way to the breakwater. Big rocks of 3 to 5 tons were used in the outer area of the breakwater to provide stability against wave action. Rock for the job came from excavation for a highway tunnel, right background.

Maginniss motor-in-head concrete vibrators—best for every job!

Use the right tool...

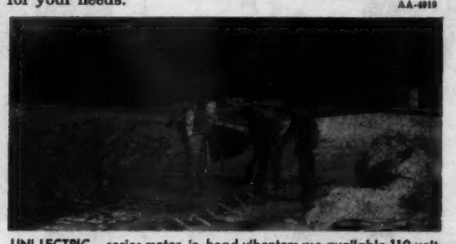
Skilled mechanics are careful to use the tool best suited for the job at hand. Profit-conscious contractors, too, use equal care when selecting concrete vibrating equipment.

And, because Maginniss builds both Hi-lectric induction motor-in-head vibrators for heavy work and Uni-lectric series motor-in-head vibrators for light work, you can choose the vibrating tool best suited for your construction jobs—large or small!

For better concrete . . . higher production . . . lower costs, see your Maginniss distributor. He'll recommend the Maginniss motor-in-head vibrator exactly right for your needs.

AA-4819

HI-LECTRIC vibrators, featuring powerful induction motor-in-head design, are ideal for continuous use in heaviest service. Use them on bridges, culverts, heavy structures of all types and on paving jobs.



UNI-LECTRIC series motor-in-head vibrators use available 110 volt current. For sound, better looking concrete, use them on footers, curbs and gutters, thin walls, drives, floors, repairs—any light job.

listed under "Contractors' Equip." in 85 principal cities

Find your nearest distributor in the 'Yellow Pages'

Maginniss HI-LECTRIC POWER TOOLS

MAGINNISS Power Tool Company

Dept. CE-79, 154 Distl Avenue, Mansfield, Ohio

For more facts, use Request Card at page 18 and circle No. 333

Plane maintains liaison between office and field

River serves as landing strip for amphibian serving contractor on Ice Harbor Dam

This is the view that passengers of the 6-place amphibian plane get of the Ice Harbor Dam project near Pasco, Wash., as the plane approaches the job. At this point, the contractor's plane is circling and heading downstream for a landing.

Commuting some 200 miles between the home office in Portland, Ore., and the Ice Harbor Dam construction site near Pasco, Wash., was an everyday experience for officials of C. J. Montag & Sons. The long trip was a practical one, for Montag's 6-place Grumman Super Widgeon amphibian made the round trip daily from the Portland airport.

The joint venture of Montag; Carl Halvorson, Inc., and Babler Brothers, Inc., of Portland; Austin Construction Co., Seattle; and McLaughlin, Inc., Great Falls, Mont., built the $30 million south-shore construction phase of the $135 million Ice Harbor project. This includes the powerhouse substructure, seven bays of the spillway, the south-shore nonoverflow section of the dam, and the fish ladder.

The second major phase will complete the spillway, provide a navigation lock with a lift of 103 feet, and complete the north nonoverflow section, and the fish ladder.

The project, located 9.7 miles up the Snake River from its confluence with the Columbia, will develop an eventual 540,000 kw and will extend slack-water navigation 45 miles up the Snake from the head of the existing McNary Dam pool. The project was

Pocket Penetrometer

Thousands in use for strength classifications of cohesive soils on field exploration or construction sites and in preliminary laboratory studies.

Direct Reading Indicator maintains the Reading until reset.

SOILTEST Incorporated — WRITE FOR COMPLETE CATALOG

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For more facts, circle No. 334

Koenig rolls up 77,152 trou with a Spicer 5-sp

"OPERATIO

Here's 77,152 miles of conclusive proof that Spicer transmissions are your best choice for economy, dependability, and top-flight performance. Be sure to specify Spicer with your next truck order.

SPECIFICATIONS

Ford T-950 Serial No. 8706-X

Delivered September 17, 1957

Rated GCW—75,000-lb.

Wheelbase –156-in.

Engine—534-cu. in. SD V-8

Transmission—5-speed Spicer 6352 with 3-speed Spicer 7231 Auxiliary

All the facts shown here as to the service history of the Ford T-950 truck serial No. 8706-X used in the Koenig Coal and Supply Company's operation are true, to the best of my knowledge and belief.

Maintenance Superintendent
Koenig Coal & Supply Company

FLORENCE M. FOWLER NOTARY PUBLIC WAYNE COUNTY, MICH.

Florence M. Fowler
Notary Public
Wayne County, Michigan

o, left, regular pilot of the Grumman Super Widgeon amphibian, ed Allen, assistant project manager for the joint-venture contrac- the south-shore construction phase of the dam, are regular 200- mmuters.

A gravel bar downstream from the job site serves as a beaching area for the plane. The plane, with two 270-hp Lycoming engines, has a cruising speed of 170 mph and a range of 1,000 miles.

designed, and construction is being supervised, by the Walla Walla District of the U. S. Army Corps of Engineers.

Make daily flights

Montag's plane, making daily flights from the Portland airport to the job site, helped maintain a very close liaison between the home office and the job. In addition to carrying administrative personnel, the plane delivered correspondence and supplies and occasionally a rush-order part for some construction machine.

The amphibious craft served well on this and other dam construction jobs, because of its ability to land on and take off from the water. No landing strip was needed. A gravel bar downstream from the job site was selected as a launching site. The bar was leveled up to accommodate the plane, and a gravel road was built up the riverbank to the construction area.

This plane is a Grumman Super Widgeon conversion as modified by McKinnon Enterprises, Sandy, Ore. Its two 270-hp Lycoming engines give the ship a cruising speed of 170 mph at an optimum ceiling of 6,000 to 7,000 feet. With a full load of fuel, it has a cruising range of six hours or about 1,000 miles.

The plane is equipped with omni-range VHF, low-frequency automatic direction finder, and other emergency navigation facilities, but pilot Si Mayo flies almost entirely under visual conditions. An oxygen kit is carried for use when conditions require flying at elevations above 8,000 or 9,000 feet.

From the air, the plane's passengers got an excellent view of the work. Flying in a single circle around the site, the contractor got a quick bird's-eye view of the operations under way and the progress of the work from day to day. THE END

Top accident cause: speed

Excessive speed was the biggest single cause of traffic accidents during 1958. According to figures from the Travelers Insurance Company, speeding was responsible for more than 40 per cent of some 36,700 deaths and 2,825,000 injuries on U. S. highways.

Other factors were reckless driving, cutting in, and wrong signals.

...e miles
...-sp...nsmission during FORD'S

...DURABILITY..."

"Operation Durability" proved to be one of Ford's best-guarded secrets. In a daring test . . . launched months before the start of production . . . prototype models of Ford's new Super Duty Trucks were placed in the hands of leading fleets for use in normal day-to-day operations.

One of the vehicles, a Ford T-950 tandem, was put to workhorse duty hauling sand and gravel from Koenig's gravel plant at Oxford, Michigan to their concrete batching plants in Detroit.

This T-950, equipped with a Spicer 5-speed transmission and a Spicer 3-speed auxiliary transmission, has a rated GCW of 75,000 lbs. Yet it consistently pulled loads of 105,000 lbs. . . . even up to 120,000 lbs. . . . winter and summer, over hilly terrain, and through metropolitan Detroit's congested traffic.

In this dramatic demonstration of stamina and durability, the Spicer combination has logged 77,152 miles . . . without one bit of downtime in over 18 months. This record performance is verified by the sworn statements of Koenig's fleet superintendent, as well as the Ford engineers who supervised the project. For, in this truly authentic test, no mechanic was allowed to replace even a bolt without reporting it to the Ford engineers.

DANA Spicer

DANA CORPORATION

Toledo 1, Ohio

...ving Transportation—Transmissions • Auxiliaries • Universal Joints • Clutches • Propeller Shafts • Power Take-Offs ...rque Converters • Axles • Powr-Lok Differentials • Gear Boxes • Forgings • Stampings • Frames • Railway Drives

Many of these products are manufactured in Canada by Hayes Steel Products Limited, Merritton, Ontario

For more facts, use Request Card at page 18 and circle No. 335

Manufacturer memos

H. J. Longmore, newly elected vice president in charge of sales for Sprague & Henwood, Inc.

H. J. Longmore is the newly elected vice president in charge of sales for **Sprague & Henwood, Inc.**, Scranton, Pa. With the firm for over 34 years, Longmore also holds executive positions in three subsidiaries of the company; he is executive vice president of Sprague & Henwood International Corp., vice president of Mine & Mill Supply Co., and secretary of Rotary Drilling Equipment Inc.

Newly elected president and chief administrative officer of the **U. S. Steel Corp.**, Pittsburgh, is **Walter F. Munford.** He succeeds **Clifford F. Hood,** who has retired but continues as a member of the board of directors and executive committee of the corporation. Munford, formerly executive vice president of engineering and research, was also elected a director and chairman of the executive committee.

Other officer-directors of the corporation were re-elected to their previous positions.

Stephen M. Jenks has been appointed to take over Munford's former post. Jenks was previously administrative vice president of central operations.

E. H. Gott has been named administrative vice president of central operations, and Oscar Pearson takes over Gott's former post as administrative vice president of the steel-producing divisions.

The engineering department of the Motor Truck Division, **International Harvester Co.**, Chicago, has appointed **S. G. Johnson** manager. Johnson, who succeeds **W. D. Reese**, was formerly assistant manager of engineering for the division.

John H. Letsinger, divisional chief engineer in the product engineering group, is now assistant manager.

Earle R. Evans, assistant to the president of Vulcan Iron Works.

The newly created post of assistant to the president of **Vulcan Iron Works, Inc.**, Chicago, has been filled by **Earle R. Evans.** He will primarily handle the sales, marketing, and advertising functions of the company, which manufactures a complete line of pile-driving hammers and piling extractors.

L. B. Philippi has been named sales manager of the new Truck Division, established by the **LeTourneau-Westinghouse Co.**, Peoria, Ill. He will direct the world-wide merchandising of the new Haulpak line of end-dump and bottom-dump trucks, coordinating his sales activities through the company's existing domestic, export, and government divisions. Philippi will have headquarters in the home office.

Armco Drainage & Metal Products, Inc., has promoted **Jack H. Cox** to manager of the Calco Division, Berkeley, Calif. Formerly manager of drainage and allied products sales, Cox succeeds **L. W. Hanson**, who retired.

John M. Robertson takes over Cox's former post, and **Howard L. White** succeeds Robertson as chief sales engineer.

Armco Drainage & Metal Products of Canada, Ltd., has elected **Edward L. Campbell** president to succeed **S. R. Ives**, who has retired. Campbell was previously vice president and general manager of the company.

The Construction Machinery Division, **Clark Equipment Co.**, Benton Harbor, Mich., has named **Charles L. Ellis** chief field engineer. He will direct all field engineering activities in connection with Michigan construction machinery.

Parry Barnes has been appointed sales training manager. He will instruct Clark sales personnel and the personnel of Michigan distributors.

L. F. Heckmann, vice president in charge of sales, The Union Metal Mfg. Co.

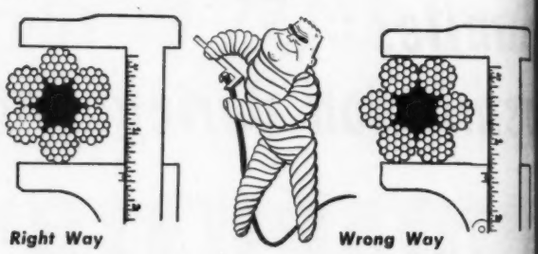
The Union Metal Mfg. Co., Canton, Ohio, has elected **L. F. Heckmann** vice president in charge of sales, succeed **W. A. Porterfield**, who has retired. Heckmann was previously general sales manager for the company.

C. A. Streb, chairman of the board, has also retired. Both he and Porterfield continue as directors and will be available on a consulting basis.

Tuffy® Wire Rope Tips

When Sheaves, Sockets and Clips Misfit... Your Pocketbook Will Be Hard Hit

How to Measure Rope Diameter



To get the most service, efficiency and safety out of wire rope operation, rope and sheaves must be precisely fitted to each other. There's only one right way to measure rope diameter: use machinist's calipers and be sure to measure the **widest diameter.**

A slight shift of the rope in the calipers, as shown above, will give misreading which would result in ordering an undersize rope. Note the measurement at right shows under correct diameter. Be sure double-check every time!

Tuffy Balanced Dragline Rope

Here's highest abrasive resistance with super flexibility. Better spooling. Smoother riding on grooves. And Tuffy Dragline Rope hugs the drum when casting for full load. Gives you longer service life, consistent dependability, in handling any material — wet or dry dirt, sand, gravel, rock, cement or minerals.

How to Check Groove Diameter

Groove diameter of a sheave or drum must never be less than the actual calipered diameter of the new rope. When a new rope is installed on old equipment, use a reliable groove gauge to make sure the tread or bearing surface of all sheaves is of sufficient size to avoid pinching the rope.

Kick Out Worn Sheaves

Old sheaves may never die, but in "fading away" they develop conditions which shorten rope life. Sheaves with grooves corrugated with rope lay impressions should be replaced with new ones before new wire rope is installed.

How to Measure Tread Diameter

Easy, and important. Select the smallest sheave or drum to be used with the new wire rope, and measure actual diameter lateral center (shortest dimension) tread.

Tuffy Balanced Slings & Hoist Lines

"Balanced" because they combine strength, flexibility and toughness in the proper relationship to do a better job longer.

Tuffy Slings and Hoist Lines are a top-performing team in every type of materials handling. The slings are made of a patented, machine-braided fabric that's next to impossible to knot or kink. The hoist lines are a special construction in which strength, flexibility and toughness are balanced.

Tuffy Balanced Scraper Rope

"Balanced" construction makes it flexible enough to withstand sharp bends, yet stiff enough to resist looping and kinking when slack. Also gives higher resistance to the shock of load impact on slack line. Moves more yardage per foot because it's specially built to take the beating of drum-crushing abuse.

Tuffy Balanced Dozer Rope

Built to give you longer service with less downtime. Mounted on your dozer, a 150' reel of ½" or 9/16" can give you a big bonus of ice. Here's how: when rope shows or is crushed on the drum, you feed just enough to replace the damaged save the 40 to 50 feet ordinarily thrown Also available in 300' and 500' reels.

The new general manager of the Cincinnati refinery of **Gulf Oil Corp.**, Pittsburgh, is **Paul Siecke.** He succeeds **Thomas F. Hogan,** who has retired. **Latham J. Lashley** takes over Siecke's former post as director of process design in the home office.

The Communications and Industrial Electronic Products Operation Division of **Radio Corp. of America,** Camden, N. J., has appointed **Fred M. Link** communications-equipment consultant. He is credited with pioneering work in television equipment, mobile radio communications, and point-to-point radio hookups, the forerunner of the present microwave systems.

Robert N. Baggs has been elected vice president of special sales accounts for **RCA Sales Corp.** He was formerly vice president of sales for the RCA Service Co.

Joseph E. Adams, executive vice president for manufacturing and development of The White Motor Co.

Joseph E. Adams has been elected to fill the newly created post of executive vice president for manufacturing and development of **The White Motor Co.,** Cleveland. Former vice president of manufacturing, Adams will coordinate product research and development, manufacturing advance engineering, and purchasing activities of all the firm's divisions. He continues in Cleveland headquarters.

Herman H. Mesick has been appointed conventions manager and coordinator of national account sales for the White Truck Division. Messick, formerly the company's territory manager in Los Angeles, will have headquarters in Cleveland.

Templeton, Kenly & Co., Broadview, Ill., manufacturer of industrial lifting jacks and pullers, has appointed four new vice presidents. **Frank Krickhan** is in charge of finances; **William Gahl,** engineering; **Roy Webb,** manufacturing; and **A. C. Templeton,** sales.

Clark Bros. Co., Olean, N. Y., has appointed **Joseph J. Rosecky** executive vice president. Rosecky, former

Joseph J. Rosecky, executive vice president of Clark Bros. Co.

vice president of operations, succeeds **F. W. Laverty,** who was recently named president of the compressor and gas-turbine manufacturing company.

Worthington Corp., Harrison, N. J., has promoted **B. R. McBath** to general manager of the company's Plainfield (N. J.) Division to succeed **K. W. Horsman,** who resigned. McBath will be responsible for the engineering, manufacturing, and sales operations of the division, which produces truck mixers, road pavers, and related concrete machinery. McBath was previously general manager of European operations for the firm.

The division also appointed **Joseph Goldsten** manager of engineering. He succeeds **W. L. Gaya,** who has been assigned to the headquarters engineering staff in Harrison.

Fred O. Snyder has been appointed manager of the Cincinnati district sales office of the firm. He succeeds **Ralph G. Griffin,** who has been transferred to the home office.

Tor R. Bengtson, general manager of Stenberg Mfg. Corp.

Tor R. Bengtson has been appointed general manager of **Stenberg Mfg. Corp.,** Hoosick Falls, N. Y. The corporation manufactures and distributes Flygt submersible electric pumps for the construction, mining, and industrial fields.

Several changes have been made among the regional field promotion managers of the **Douglas Fir Plywood Association,** Tacoma, Wash. **Darwin C. Boblet** has been transferred to New York City; **Vern Haskell** is now Detroit regional manager; **W. D. Page** has been named executive vice president of the Plywood Fabricators Service, Inc.; and **Don Lockridge** is the Chicago manager.

Six new members of the field promotion staff are: **James E. Fox,** Chicago; **Paul J. Marsh,** Seattle; **Harlow T. Richardson,** Los Angeles; **Curtis W. Solly,** Minneapolis; **Harold J. Tejes,** Sacramento; and **Hampton W. Wagner,** Detroit.

Three changes in its field sales organization have been made by the **Euclid Division,** General Motors Corp., Cleveland. **D. B. Currence** is regional manager in the East, with headquarters in New York City. He is succeeded in Atlanta, Ga., by **D. E. Lutz. J. W. Carter** is now district representative for Alabama, Georgia, and Florida.

Use the Right Fittings

ght fittings add life expectancy to ire rope. Fittings which derive lding power from crimping action e harmful.

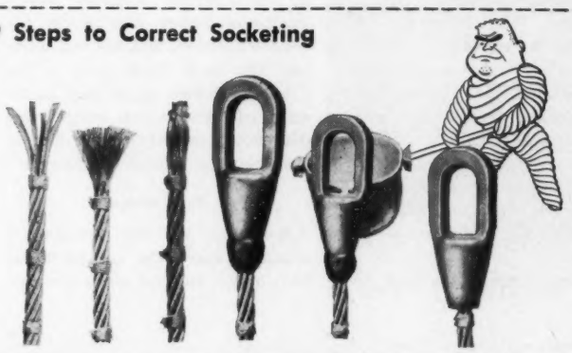
hown here is a clamp that has no wrong side"—can be put on either ay. It snugly saddles the rope, rips larger surface area in such a ay that loads are carried almost tirely by friction instead of crimpg action. Combined in its two parts a thimble. The parts are interked to prevent collapse of the imble and eliminate all shear on e bolts.

ecommended sizes:

Diameter of Rope	Min. Dia.	Max. Dia.
⅛-⅞	+ 1/64"	+ 3/32"
⅞-¾	+ 3/32"	+ 1/16"
⅞-1⅛	+ 3/64"	+ 3/32"
1¼-1½	+ 1/16"	+ ⅛"
1⅝-2¼	+ 3/32"	+ 1/16"
2⅝ and larger	+ ⅛"	+ ¼"

ew ropes are usually over-size. It is ivisable to have groove diameters sheaves or drums as large as the tual calipered diameter of the new pe, or slightly larger. We recomend sizes as above charted.

9 Steps to Correct Socketing



1. Securely seize and serve with soft wire ties before cutting, and have at least two additional seizings placed at a distance from the end equal to the length of the basket of the socket.
2. When the rope is properly seized, take off the end seizing. Cut the fiber center back to the seizing, as shown in 1 above. Untwist and broom out the wires. See illustration 2.
3. Clean the wires for the distance they are to be inserted in the socket. Use benzine, naphtha, gasoline or other solvent. Then wash off in boiling water or boiling ammonium chloride used in Step 5.
4. Then dip cleaned wires in commercial muriatic acid to a depth not greater than ¾ of the cleaned length of wire. Keep the wires immersed for 3 minutes, or until the acid has thoroughly etched each wire. Be sure acid does not contact any other portion of rope.
5. Immerse wires into boiling ammonium chloride. A white coating will be left on the wires.
6. Place a temporary tie wire over the ends of the cleaned wire (see illustration 3). Be careful not to get the cleaned wires greasy or oily.
7. Insert the rope end into bottom of socket. Remove temporary tie wire.
8. Holding the rope vertically in a vise, set the socket so that the wires are flush with top of the socket basket and seal the bottom with putty or clay (See illustration 4). Pour in among the wires about ½ teaspoon of sal ammoniac crystals.
9. Pour molten zinc into the basket until it is full (see illustration 5). When zinc is solidified, the seal is removed and socketing complete as shown in illustration 6. The zinc must not be too hot or it will anneal the wires, particularly of small ropes. Temperature must not be above 925° F. Use pine stick test: if stick chars but does not ignite, the zinc is ready to pour. Overheated zinc will have a red color and stick will catch fire. When zinc has solidified sufficiently, the socket may be plunged into cold water.

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2

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The 9-inch-diameter Richvoid tubes used in one of the slab-type bridges along Interstate 55 near McComb, Miss., are tied down with spacer bars so that they will not be floated to the surface when concrete is placed. Bars are wired to the wooden deck forms of the bridge.

A weep hole at end of the tubes condensed moisture the tubes to dri beneath the Small hoses are inserted in the tub form the weep The hose drops fro tube to a hole deck forms. background, co forms during show

Paper tubes save on deck concrete

Care is taken to hold tubes in place in the concrete and remove condensed moisture from them during wo

Slab-type bridges, containing paper tubes, and box-girder bridges are mushrooming in Mississippi, where highway men are busy on contracts for the Interstate System. To some of the supers, the bridge construction was new: box-girder bridges, only recently used in the state, were difficult to form and tricky to build; and some contractors were learning how to build the new bridges with voids in the center of the slab.

A contractor with a typical share of this work is J. B. Michael & Co., Inc., Memphis, Tenn., holder of two contracts for the grading and structures on a 13-mile stretch of Interstate 55 near McComb, Miss. Both contracts, totaling $4.3 million, call for the excavation of 2.8 million cubic yards of earth and the building of 23 bridges (counting twin structures as two bridges). Completion of the big job is expected early in 1960.

The largest share of the work is on the 23 bridges. These are mostly box-girder bridges that require extensive falsework and involved forming. The paper tubes used in the three slab bridges make voids in the center of the slab, thus reducing the dead weight of the span as well as the amount of concrete in the slab.

Tube bridge

Spans for the tube bridges are relatively short. On one particular twin bridge, the five spans are each about 31 feet in length. The brid carry the four lanes of the highw over a small creek bed. Each of piers consists of five concrete p rising from the ground to a concr cap.

To support the wooden deck for the contractor used two bents timber piling per span. The dista between the timber bents was brid by 18-inch I-beams, which carr transverse 6×8's. These members s ported 2×6 joists which, in turn, c

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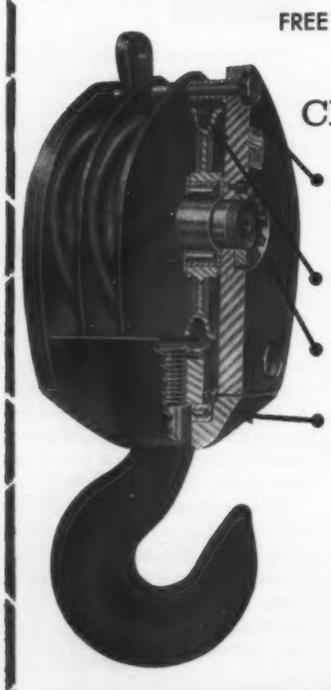

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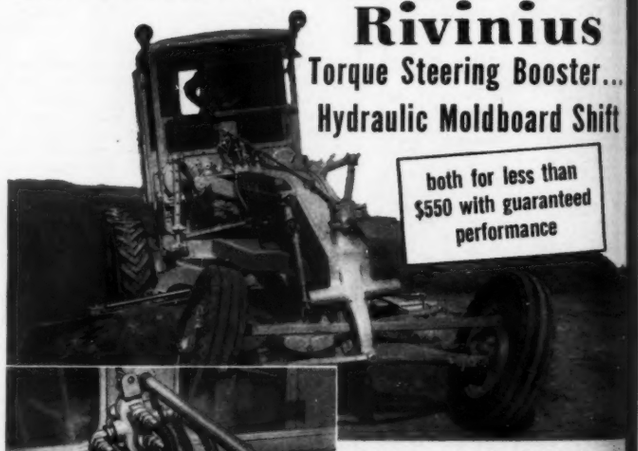

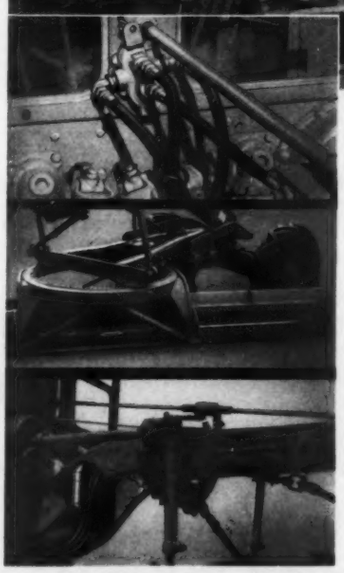

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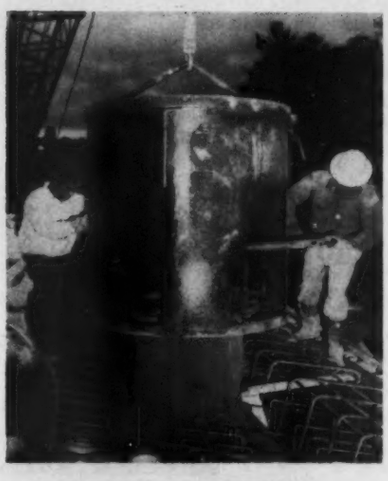
A Koehring 305 motor crane with Insley ¾-yard bucket picks up concrete from a Mack-mounted Smith mixer. A Ford with another mixer is ready to replace the first rig.



Concrete is placed in the deck in two lifts to reduce flotation. Workmen are dumping the Insley bucket for the first lift, which will bury the tubes to a little over mid-point.

ried the ¾-inch plywood decking for the span.

After the deck forms were in place, the No. 11 bars in the bottom layer of steel were set. Topping this layer was an up-and-down pattern of bent steel that served to "box in" the tubes. The upper layer of steel was comparatively light, consisting of a network of No. 4 bars.

With the reinforcing steel in place, the Richvoid tubes were inserted

(*Continued on next page*)

A crew member consolidates concrete with a Mall electric vibrator as the mix is placed, while the crane picks up another bucket of concrete from the Smith mixer.

The CF&I Image provides safety in action with **Cal-Tie Wire**

The safety-first contractor doesn't expose his workers to the hazards of working with cumbersome shoulder coils... he equips them with Cal-Tie Wire in a convenient belt-borne dispenser.

This method provides the safe, economical way to tie re-bars. It prevents eye and face injuries inflicted by the loose ends of shoulder coils, makes close quarter work easier, keeps workers' hands free. Waste from cut ends is reduced. The job is done quickly and efficiently.

Cal-Tie Wire—the quality-controlled wire—is available in gages 14 through 20. The light-weight coils fit any standard tie wire dispenser. Call the nearest CF&I sales office for complete information.

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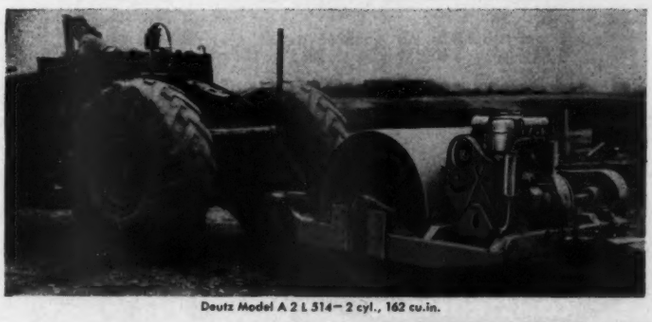

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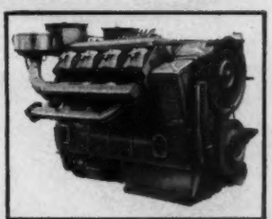

Deutz Model A 8L 614 – 8 cyl.

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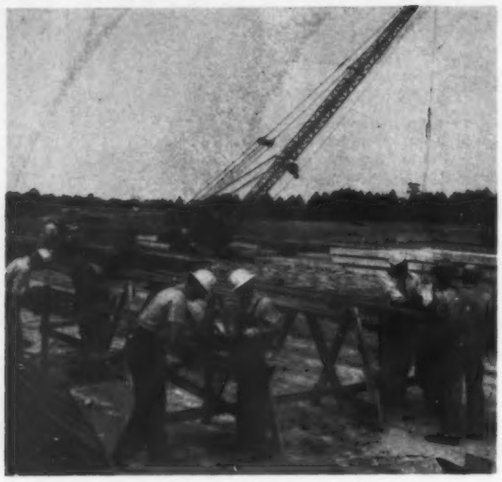
(Continued from preceding page)



Some 50,000 feet of concrete pile for the job is made in this casting yard. Men are tying reinforcing cages together for the piles. Cal-Tie reels are used by some of the crew. The Koehring 405 is used to load piles to trucks.

from the end through the "boxes" formed by the steel. The 9-inch-diameter tubes, set on 14-inch centers, rested on chairs about 6 inches high. Running across the tops of the tubes were spacer bars that were wired to the deck forms. The spacer bars held the tubes in place, preventing them from rising in the concrete.

To provide an exit for condensed moisture in the tubes, weep holes were provided. At each end of the tube, a small rubber hose extended down to a hole in the forms. The hose was later removed.

Deck concrete

Considerable care had to be taken to prevent the tubes from rising in the concrete. The concrete was placed in two lifts to reduce the buoyant force. The first lift, which was allowed to get a little stiff, went a little more than halfway up the tubes. The second lift brought the concrete to the top of the 19 to 21-inch-thick deck. On this bridge, most of the concrete was placed by a Koehring 305 motor crane swinging an Insley ¾-yard bucket from transit-mix trucks to the forms. A Master electric vibrator consolidated the concrete. After the deck was belt-finished and cured overnight under wet burlap, it was given a wet sawdust cure.

Pile-casting yard

To make the approximately 50,000 feet of concrete pile required by the job, J. B. Michael set up his own casting yards. The three casting beds, located at about the middle of the job, contained 4,600 feet of wooden forms. The first two beds were supported by timber stubs, but the third was built on a 4-inch concrete slab. The slab proved to be the cheaper and better method of construction.

The 14-inch square piles varied in length from 12 to 55 feet. They were reinforced by ¾-inch steel bars enclosed in ¼-inch spirals. The cages were prefabricated at the yard and set in the forms. Ready-mix concrete was bucketed to the forms by a Koehring motor crane.

After being cured under wet burlap by continuous fogging for five days, the piles were left in the forms an additional two days before being lifted to the nearby stockpile. Using only a small 6-man crew, the contractor was able to place from 75 to 100 cubic yards of concrete in a 5-day week. The best production was 2,000 feet of piling per week.

Solve traffic problem

During work on the twin 4-span, 225-foot box-girder bridges that carry the interstate route over State Route 24, the contractor had to maintain traffic on the state highway. Forms over the 2-lane roadway were supported by 18-inch I-beams resting on timber pile bents.

An effective sign system warned motorists of the construction and reduced clearance. On both sides of the bridge was a large across-the-highway sign reading "Clearance 12 feet 6 inches." There was also a wooden cross piece over the road set at a height that would stop, or at least slow down, oversize trucks. During the night hours, a large flashing red light warned motorists.

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GORDON SMITH & COMPANY, INC., Bowling Green, Ky.

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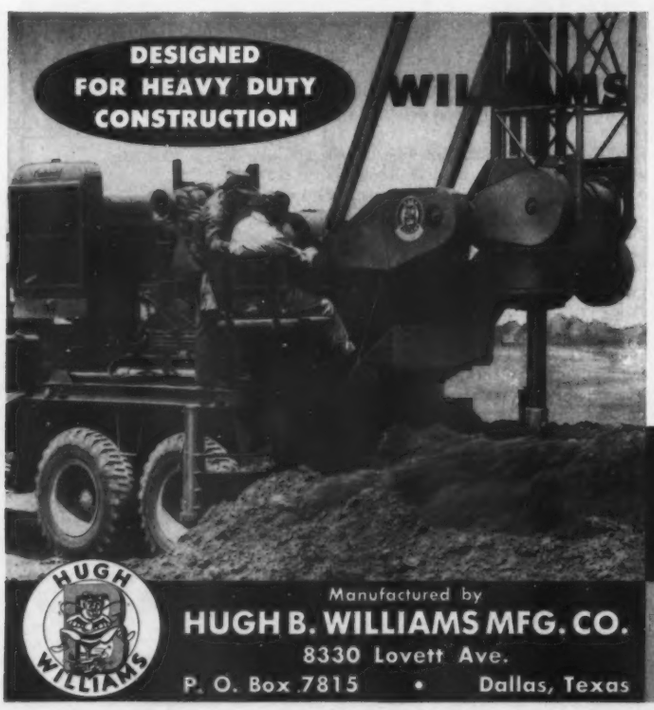

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while under the bridge, flaming kerosene pots clearly defined the edges of the road.

At last report, no truck drivers succeeded in carrying away a load of falsework. And no motorists, drunk or sober, have had any trouble finding their way through the clearly lighted passage.

Nathan Cole is superintending the work for J. B. Michael. Dewey Reid was foreman on the tube bridge. Clyde Dillon is office manager. The casting yard superintendent is Loyd Brown.

On the job for the Mississippi State Highway Department is R. G. McLendon, district engineer, and Bailey O. Fridge, assistant district engineer in charge of interstate work. L. W. Guy is project engineer; D. B. Jackson, Bobby J. Hall, and Walton S. Little, assistant project engineers; and C. A. Simmons, L. M. Ratcliff, Paul McCullough, and H. B. Warnack, project assistants. THE END

A Koehring 405 with 50-foot boom and 55-foot leads uses a Vulcan No. 1 hammer to drive a 35-foot abutment pile on a 2-inch to 1-foot batter for one of the box-girder bridges. An Allis-Chalmers HD-6 front-end loader, using a cable attached to the leads, holds the strain off the pile.

Lincoln Electric founder and executive die

John C. Lincoln, 92-year-old founder of The Lincoln Electric Co., Cleveland, died in late May. Lincoln started the company in 1893 in a 30 x100-foot shop. After several moves to larger quarters, the company was incorporated in 1906, and Lincoln was president from then until 1928, when he became chairman of the board and was succeeded as president by his brother James F. Lincoln.

Within 24 hours after Lincoln's death, the company's vice president and secretary, Alton F. Davis, died. A member of the firm since 1914, Davis was also secretary of the James F. Lincoln Arc Welding Foundation from the time it was created in 1936. Davis also started the A. F. Davis Welding Awards with the American Welding Society in 1945.

For more facts, circle No. 343→

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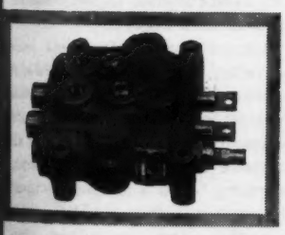

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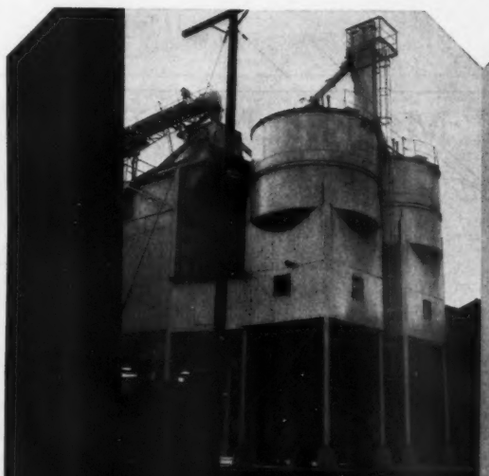

Twin 1000-barrel Heltzel Cement Plants are partitioned into four compartments to handle up to four types of cement and fly ash. All compartments are loaded by a common elevator.

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twin two-stop manual plant gives ready-mix producer speed, flexibility

By teaming two standard Heltzel batching plants Marion Ready Mix, a leading Pittsburgh concrete supplier, is able to get the high speed production they require during rush periods. Utilizing dual two-stop drive-throughs, four trucks can be handled simultaneously, and different mixes can be batched at the same time by a single batch crew.

Aside from the production advantages Marion is able to handle both plants with a single material handling system. One belt conveyor services all eight compartments of the two 400-ton aggregate plants through an eight-position rotary spout. The four compartments of the two 1000-barrel cement plants are fed by a single elevator through an ingenious system of flop gates. All batchers are controlled from one platform.

The results: Marion charged 30 trucks with aggregate and cement in 35 minutes. A six-yard (19,000 lbs.) aggregate batch was cycled in 45-seconds and a six-yard cement batch in 55-seconds. This from standard manual controls.

If you're not now getting this kind of plant performance why not contact your Heltzel representative for the last word in modern batching technique.

Write today for complete information.

THE HELTZEL STEEL FORM AND IRON COMPANY

WARREN, OHIO

A truck dumps lime to U. S. 49 near Jackson, Miss., where the predominant soil is clay with a high plasticity index. At this point, the effect of the hydrated lime applied the day before was already noticeable along the stretch.

Lime stabilization cuts subbase costs

by C. C. Parsons
District Testing Engineer
State Highway Department
Yazoo City, Miss.

Lime stabilization of heavy cl soils paid a double dividend on t projects in the Third District of t Mississippi State Highway Depar ment: it saved on the use of granul materials, and it also cut the t required to complete the jobs.

In this district, which compris much of the so-called Delta secti of the Mississippi River, base an subbase costs are necessarily hi because of the scarcity of satisfa tory granular materials. The pr dominant soil is a clay with an ex tremely high liquid limit, plasticit index, and volume change. These sub marginal clays were put to u through lime stabilization. With thes in-place clays strengthened, overly ing base thicknesses could be reduce to conserve granular materials.

The stabilization procedure als hurried the job along, for the dryin action of the lime made it possibl to get going again shortly after a rain. Generally, contractors workin in this area are bogged down severa days following a rain. The lime-sta bilized subgrades also remained sta ble after rains; no rutting took plac as a result of construction traffi using the roadway.

Turn to lime stabilization

As district testing engineer, part o my duty is to locate subbase and bas materials, and then design the sub base and base and make recommen dations to the main highway depart ment office in Jackson.

Highway construction costs wer increasing and, by the early '50's, i was necessary to find new subbas material in our district. None coul be found. Meanwhile, I had read al available literature on stabilizatio of plastic clays and had discusse the method with people who knew something about the subject. Con vinced that lime could be used t treat or stabilize the plastic clays i this area, I next had to sell the idea to my superiors and the Bureau o Public Roads.

Laboratory tests on several cla soils, with and without lime treat ment, were run by H. O. Thompson state testing engineer, and the suc cess of this preliminary testing led to the setting up of the two subgrad projects. One is on the primary sys tem near Jackson; the other is a 6 mile secondary road project near Cleveland, Miss.

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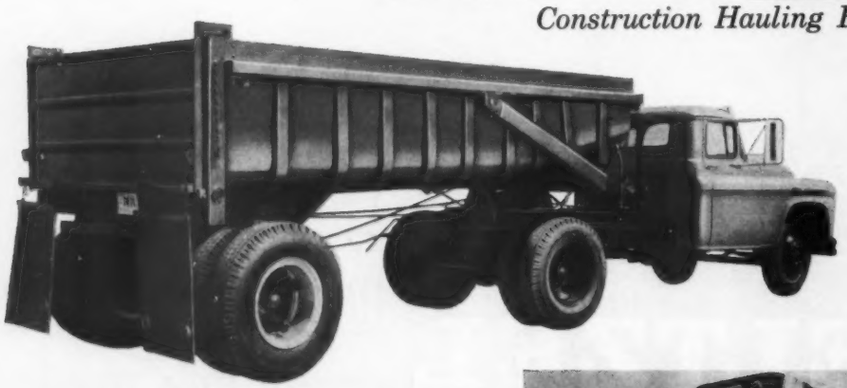

1 Single Axle Cable Dumps—1,000 pounds lighter than previous models, this Fruehauf-Schonrock Cable Dump is your choice for fast, efficient, low-cost handling of gravel, sand and dirt. Tandem models and rock bodies are available.

2 "Airslide"* Pressure Tanks—Lower initial cost, faster unloading, are two big features of Fruehauf's "Airslide" pressure tank-trailer for cement and barites. Also available are screw-type and gravity discharge bulk cement tanks, plus hot commodity tanks.

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A motor patrol spreads the lime. A more uniform spread is obtained by using the back of the blade for the spreading operation. The lime enabled crews to get back on the job early after rain.

An Allis-Chalmers subsoiler breaks up the soil before the hydrated lime is incorporated into the material. Because of the success of the test jobs, the department plans to use the method when possible.

After the roadway has been heavily sprinkled and a mechanical mixer has mixed the lime and clay, the subgrade is compacted by a sheepsfoot roller. A motor patrol and roller then shape up the roadway.

Primary highway stabilized

The first project involved a 14.26-mile section of U. S. 49 north of Jackson. On this job, a typical section consisted of 6 inches of lime-stabilized clay, 6 to 12 inches of sand-clay topping, 6 inches of non-pumping aggregate, and 8 inches of reinforced concrete.

Before the first job was set up, preliminary laboratory tests were made with 6 per cent hydrated lime used by weight of soil. Results:

	Raw Soil	Treated Soil
PI	57	17 @ 72 hours
Volume change	127	36 @ 72 hours
CBR	1	38 @ 25 blows

Data obtained in the field on raw soil and on soil treated with 6 per cent lime showed:

	Raw Soil	Treated Soil
PI	44	22
Volume change	98	45
CBR	3	48*
Per cent passing No. 4 sieve	0	65**

* Estimated.
** Minimum of 75 per cent required unless waived by engineer.

Tests on the treated soil were not run for some two or three weeks after the samples had been submitted to the district laboratory. This delay was caused by other pressing work that had to be done. Tests also showed good results in the soil after treatment, though it was recognized that such results cannot always be expected—particularly with poorer soils.

Tests made three hours after treatment, and again 5 days after treatment, showed:

	Raw Soil	After 3 hours	After 5 hours
Liquid limit	46	37	30
PI	28	4	0
Volume change	72	70	30

The stabilization on this section served two purposes: as a substitute for sand-clay topping, which is scarce in the area, and as a research section.

Hyde Construction Co., Jackson, was the contractor on the job, with Rupert Cox serving as general superintendent. All work was under the supervision of project engineer on the job for the state, John A. Miller. The lime-stabilization work was actually done under a subcontract by

(*Continued on next page*)

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The surface is kept damp for five days, then mixed, compacted, shaped again, and kept moist until the first 6-inch lift of sand-clay topping is placed. Compaction of this first lift is being handled by a Ferguson pneumatic roller.

Lime, delivered by covered hopper car for the secondary project near D can, is fed into a dump truck by means of a Fort Worth Steel & Machin Co. screw elevator. Dump trucks hauling the lime to the grade were cover to prevent loss of the material.

(*Continued from preceding page*)

Ben F. Hawkins, Lake Providence, La.

The first step in stabilizing the top 6 inches of subgrade was to haul the lime to the roadway by trucks and dump it on the road. The dump bodies were covered to prevent loss of lime during the haul from the railroad siding to the project, and the tail gate was covered with canvas to avoid excessive loss while lime was dumped. Uniform spreading of the lime was handled by a motor patrol. After this, a rooter, scarifier, or cultivator was used to rip the subgrade. A heavy sprinkling followed before a mechanical mixer came in to partially pulverize and mix the lime and clay. Two or more passes were made by the scarifier and the mechanical mixer before the subgrade was compacted by a sheepsfoot roller and shaped by a motor patrol and rubber-tire roller.

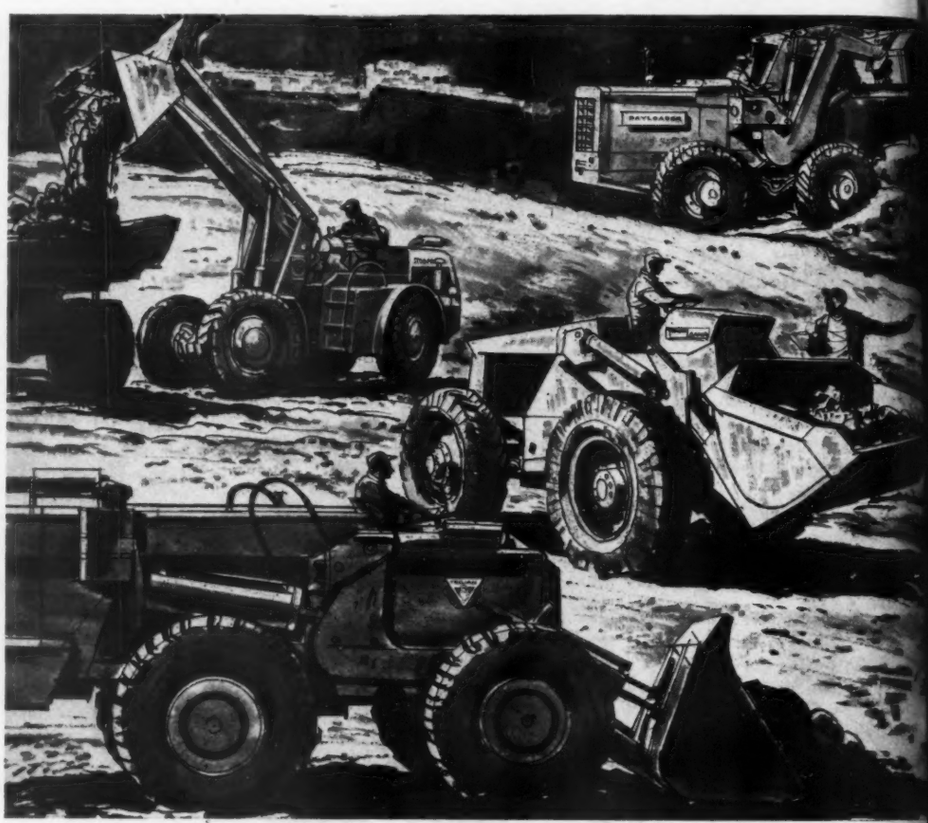
During the next five days, the surface was kept damp. Then the subgrade was scarified, remixed, and compacted and shaped again. The mixing and pulverization required two to six passes of the mixer, depending on the type of material. After final compaction, the surface was kept moist until the first 6-inch lift of sand-clay topping was placed.

In any future projects involving lime stabilization, some changes in this construction procedure are likely. It is felt, for instance, that a 3-day waiting period between the two mixing operations serves the same purpose as a 5-day period in most instances. Also, from a practical standpoint, it is extremely difficult to pulverize soils that contain heavy clay so that 75 per cent of the material will pass the No. 4 sieve. The maximum should be from 50 to 60 per cent.

Finally, it is felt that the contractor should not only scarify, but also thoroughly mix, the material that is to be stabilized at the time that lime is added, instead of at the end of the first curing period. This will reduce the number of passes required to obtain the desired pulverization during final mixing.

Secondary road job

The other lime-stabilization project involved 6.2 miles of State Route 444 extending west of Duncan. Preliminary testing, performed in the



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The same type of heavy clay soil was found on the second project—a 6.2-mile section of State Route 444 near Duncan, Miss. Here, the subgrade clay is being scarified before the lime is spread.

A motor grader levels lime dumped on the secondary road job. Cost of stabilization on both jobs was 30 cents per square yard. Lime was bid at $23.75 per ton for the primary job and at $25 per ton for the secondary project.

state laboratory, showed these results:

	Raw Soil	Treated Soil*
PI	31	Not run
Volume change	70	34**
CBR	4	30 @ 25 blows

* 6 per cent by weight.
** Estimated.

Field tests, run in the same manner as those for the first project, gave these results:

	Raw Soil	Treated Soil
Liquid limit	83	60
Plastic limit	18	30
PI	65	30
Volume change	151	64
CBR	1	34*
Per cent passing No. 4 sieve	0	62**

* Estimated.
** Minimum of 75 per cent required unless waived by engineer.

On this job, C. E. Bain was general superintendent for the contractor, J. A. Hadley Construction Co., Humboldt, Tenn. Work was under the supervision of W. N. McDonald, who served as project engineer for the Mississippi State Highway Department.

A typical section for the 6.2-mile project consists of 6 inches of lime-treated clay, 1½ inches of sand-clay topping, 8 inches of mechanical stabilized base, and a double bituminous surface treatment. The base was constructed by using a plus or minus 4 inches of topping; 2 cubic feet per square yard of medium stabilizer, primarily sand; and 3.75 cubic feet per square yard of coarse stabilizer, 1-inch graded gravel.

After trucks dumped lime to the roadway, the material was spread and leveled with a grader. Then the grader-scarifier and disk harrow were used to thoroughly scarify the top 6 inches, water being added as needed. Next, the grader bladed the material back and forth across the roadway. Then the sheepsfoot roller, the motor patrol, and the rubber-tire roller were used to compact, shape, and seal the subgrade. The surface was kept moist for a minimum of five days. Following this initial curing, the material was remixed and pulverized by means of a mechanical mixer. Final compaction was accomplished with sheepsfoot and rubber-tire rollers before the subgrade was shaped by the grader.

(Continued on next page)

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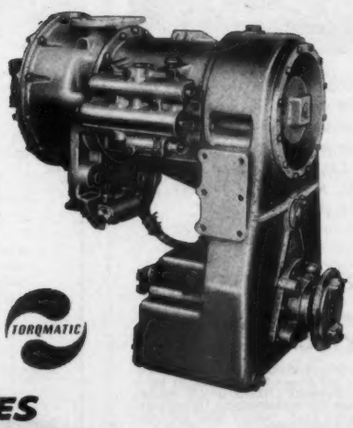

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(Continued from preceding page)

The contractor on this project had a harder time pulverizing the material after the 5-day period than the contractor on the first project, although the materials on both jobs were practically the same. Lack of a mechanical mixer in the first scarifying and mixing operation, I believe, may have been the cause of this difficulty.

Job comparisons

No attempt was made to control the equipment selections of the contractors on these projects. However, the per cent of lime and control of the pulverization (minimum per cent passing No. 4 sieve) were stipulated for both jobs, as was the fact that the subgrade was to be kept moist until the first layer of topping had been placed.

An interesting comparison is one relating to costs: work on the primary highway was bid at 30 cents per square yard, plus $23.75 per ton for the lime. The contractor on the secondary road bid 30 cents per square yard for the total stabilization and $25 per ton for the lime.

The dry density of the soil, as determined in the laboratory for both projects, ranged from 93.4 to 98.5 pounds per cubic foot. The percentage of density after mixing, shaping, and compacting work varied from [illegible] to 102 per cent of Proctor (AASHO

At present there are two lines [illegible] thought in regard to lime stabili[illegible] tion. One holds that lime should [illegible] be disturbed after it has been thor[illegible] oughly mixed in the soil, and the [illegible] compacted and shaped. The oth[illegible] holds that the stabilized materi[illegible] should be remixed and compacte[illegible] again after the initial phase of co[illegible] struction. The latter idea, follow[illegible] on these two projects, is now a pol[illegible] in the state.

The use of lime has been so su[illegible] factory on both these projects, th[illegible] the method will be used whenever [illegible] is deemed advantageous in the futu[illegible] The main advantages of its use—t[illegible] elimination of the need for su[illegible] clay topping or other subbase m[illegible] terial and the easy resumption [illegible] work following a heavy rain—[illegible] even be augmented by another be[illegible] fit. I believe that lime-stabilized s[illegible] bases can be constructed where [illegible] water table is relatively high [illegible] near the surface without any da[illegible] age occurring to the road in [illegible] future, for this type of construct[illegible] discourages capillary action of [illegible] surface water. THE E[illegible]

From a paper presented by C. C. Per[illegible] before the Lime Stabilization Committe[illegible] the ARBA.

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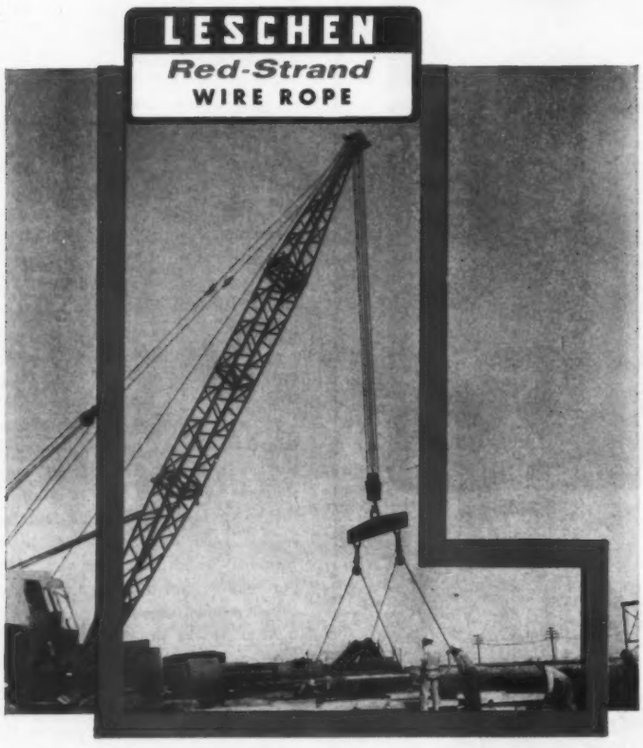

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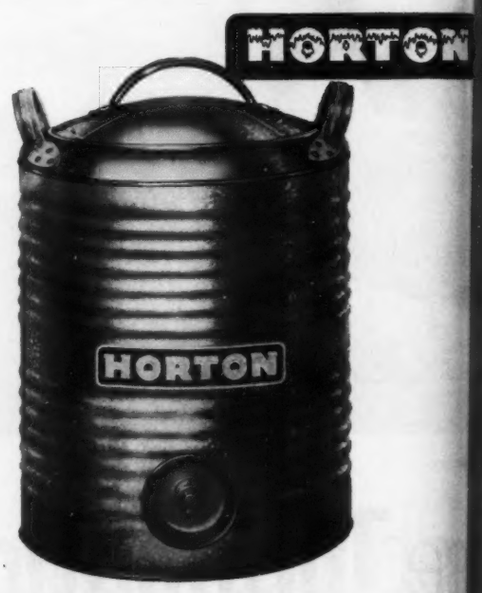

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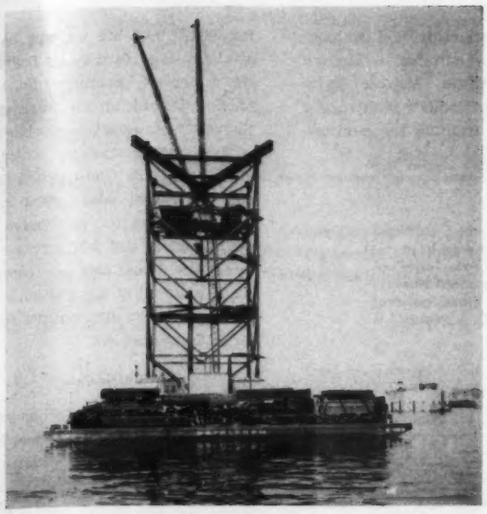

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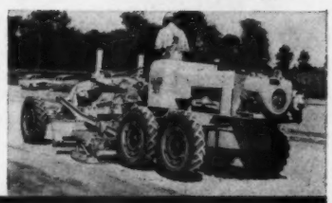

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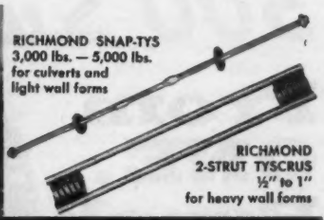

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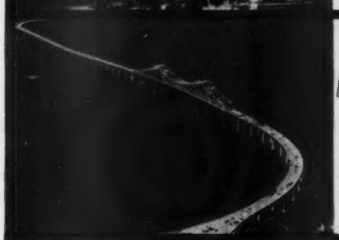

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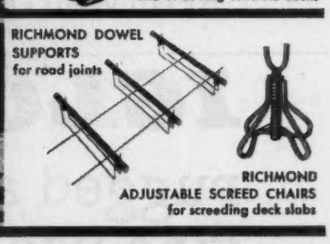

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Euel Hyatt, center, shop and service foreman of C. L. Boyd Co., Tulsa, Okla., is typical of the seven men who have received Master Technician certificates from Melrose Technical Institute, the service training center of International Harvester's Construction Equipment Division. W. W. Black, general service supervisor, left, presents the award. C. J. Webb, I-H service representative, is at right.

The 5,000 distributors' and contractors' servicemen enrolled in Melrose Technical Institute, Melrose Park, Ill., are proof of today's high regard for specialized training for mechanics. These men are working hard attain ratings as Service Technic No. 2, Service Technician No. 1, Master Technician on Internati Harvester construction machiner

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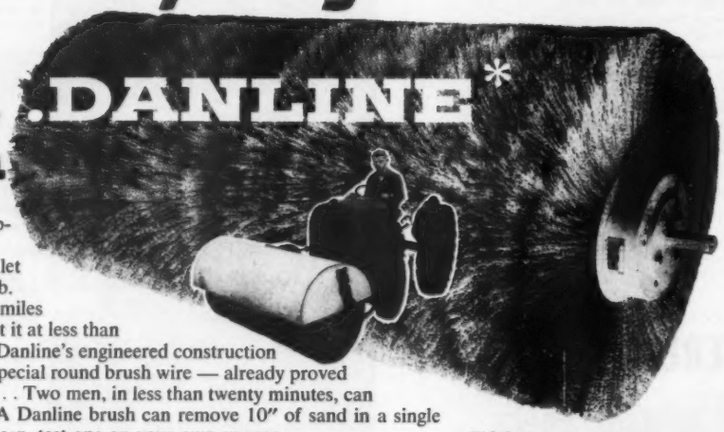

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IGLOO leads in water cooler sales because it's stronger, lasts longer. IGLOO will keep more men on the job more of the time. When you order water coolers, specify IGLOO. Available in 2, 3, 5, 10 and 15 gallon sizes.

IGLOO No.1

IGLOO CORPORATION

BOX 8227 MEMPHIS 4, TENN.

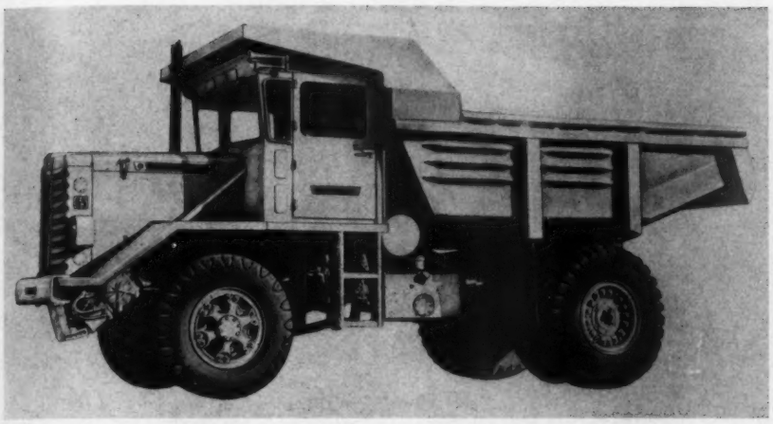
first in sales/buy the best cooler--buy IGLOO

For more facts, use Request Card at page 18 and circle No. 354

XUM

PRODUCT PARADE

For further information on any of the products described in the following section, circle the designated number on the Request Card at page 18.



Corrugated bodies on rear dumpers said to eliminate dead-weight drag

Two new Payhauler rear-dump off-highway trucks, featuring corrugated bodies designed to eliminate dead-weight drag, are available from the International Harvester Co. The units are the Model 95, with a heated body, struck capacity of 18 cubic yards, and 27-ton payload; and the Model 65, with a struck capacity of 12.5 cubic yards and a 19-ton payload.

An I-H diesel engine obtains speeds up to 38 mph for the Model 95, and to 36.46 mph for the Model 65.

For further information write to the Construction Equipment Division, International Harvester Co., Dept. C&E, 180 N. Michigan Ave., Chicago, Ill., or use the Request Card at page 18. Circle No. 59.

New 2½-cubic-yard-capacity shovel converts to clamshell, backhoe, dragline, or crane

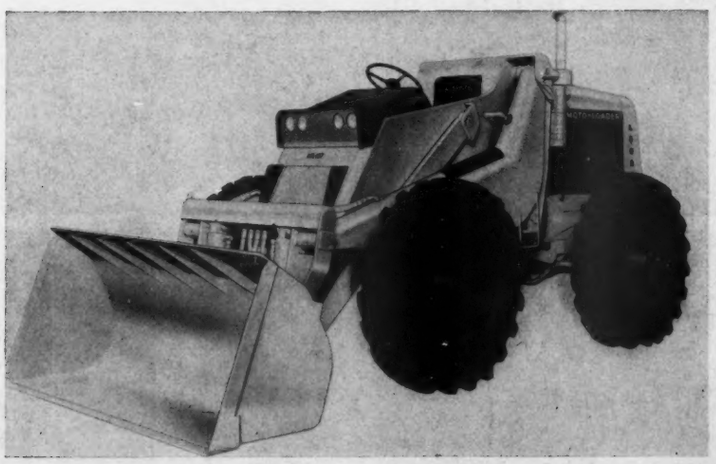
Newest addition to the Manitowoc line of power cranes and excavators is the Model 3100, a 2½-yard shovel said to be easily converted to clamshell, backhoe, dragline, or crane.

According to the manufacturer, the unit handles, travels, and can be moved from job to job with small-machine ease. For movement by truck or crane, complete crawler assemblies are easily removed.

Rapid and safe raising and lowering of the boom is provided by the double-drum boom hoist which equalizes pull on the boom and lessens cable wear. The boom hoist has only 14 gears.

To provide smooth, precise control, standard equipment includes air controls and a torque converter.

For further information write to the Manitowoc Engineering Corp., Dept. C&E, 16th and River Sts., Manitowoc, Wis., or use the Request Card at page 18. Circle No. 119.

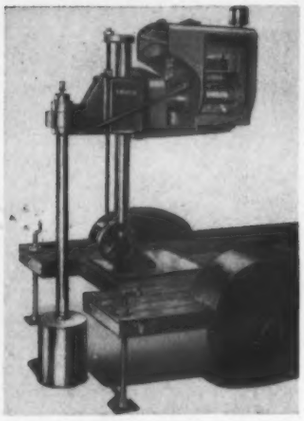


Offer new front-end loader with 2-cubic-yard capacity

A new 2-cubic-yard-capacity, 4-wheel-drive front-end loader is announced by The Thew Shovel Co.

Designated Lorain Moto-Loader Model ML-157, the machine is powered by a 6-cylinder gasoline engine developing 105 horsepower at 2,200 rpm and furnishing travel speeds from 3 to 24 mph. A 110-hp diesel engine is also available. One-foot control of travel direction and speed is included among standard features.

For further information write to The Thew Shovel Co., Dept. C&E, 28th and Fulton Road, Lorain, Ohio, or use the Request Card at page 18. Circle No. 43.



The Truco Mighty Model G mobile diamond drilling machine drills holes up to 20-inch OD through a variety of materials. It can be equipped with a special steel base for bolting to the bed of a suitable truck or low-bed trailer. Electric, air, and gasoline power are available for the rig.

High-speed diamond drill for big-hole boring

A heavy-duty, high-speed machine for diamond drilling of big holes is offered by the Truco Masonry Drilling Division of the Wheel Trueing Tool Co.

Named the Truco Mighty Model G, the machine rolls easily into position on large rubber-tire wheels to spot big holes accurately in corners and other tight positions. It is available with electric or air motors of 5, 10, and 15 horsepower, and with gasoline engines of 12½ and 18 horsepower. Types are also available for bolting to the bed of a suitable truck or low-bed trailer unit for mobile use. These machines can be used for drilling holes up to 20-inch OD, as well as for test core extraction on highways, airport strips, and on construction jobs beyond the power lines.

For further information write to the Truco Masonry Drilling Division, Wheel Trueing Tool Co., Dept. C&E, 3200–53 W. Davison, Detroit 38, Mich., or use the Request Card at page 18. Circle No. 84.

Pneumatic vibrator delivers 8-ton impact

The Cleveland Vibrator Co. announces the Model FAC pneumatic vibrator delivering 16,000 pounds of impact. Used principally on hoppers, large bins, and railroad car shake-out, this 7-inch unit operates on 60 to 80 pounds of air pressure, and the 176-pound piston has a 1¼-inch stroke.

Vibrator speed and intensity can be varied according to needs, and the unit can be rigged to operate continuously or intermittently. The reciprocating action of the piston is air-cushioned for quiet operation on applications where noise is an objectionable factor. The entire weight of this vibrator is 539 pounds.

For further information write to the Cleveland Vibrator Co., Dept. C&E, 2850 Clinton Ave., Cleveland 13, Ohio, or use the Request Card at page 18. Circle No. 97.

Use of automatic blade control afforded the Highway Department of Babylon, N. Y., a saving of more than 80 per cent in motor-grader time. Without the Preco system, two motor graders reportedly worked 5 days to complete 4,100 feet of 50-foot-wide road with an 8-inch crown. With Preco installed, one motor grader worked less than a day to complete a 2,300-foot stretch. For further information about automatic blade control, write to **Preco Inc.**, Dept. C&E, 6300 E. Slauson Ave., Los Angeles, Calif., or use the Request Card at page 18. Circle No. 126.

Roller belt conveyor features hydraulic drive

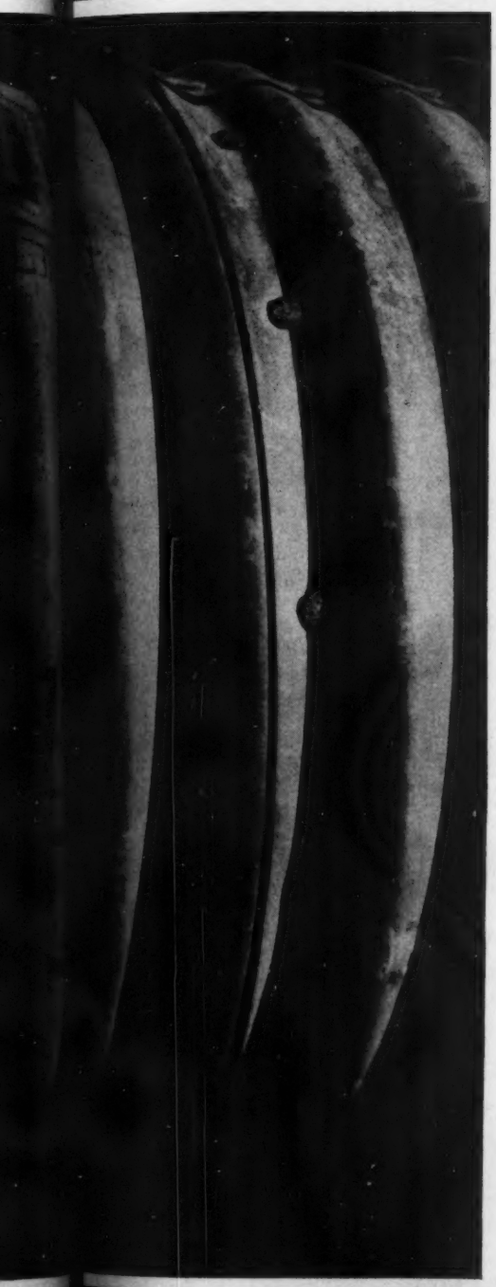
A new idler roller belt conveyor with hydraulic drive, for moving fresh concrete and bulk material, is announced by the Morgen Mfg. Co.

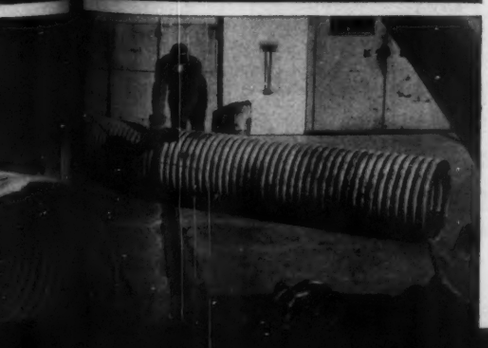
According to the manufacturer, the conveyor is virtually maintenance-free because the sealed hydraulic system is completely self-lubricating and all idler rollers are equipped with sealed-for-life ball bearings. The top drive pulley keeps the belt slack on the return side and provides a smooth ride for material on the belt.

Other features of the machine include a self-cleaning tail pulley, reverse belt movement, and swivel wheels for parallel and circular movement. The machine reportedly is capable of elevating 40 yards of concrete per hour to heights up to 22 feet.

For further information write to the Morgen Mfg. Co., Dept. C&E, 115 N. Broadway, Yankton, S. Dak., or use the Request Card that is bound in at page 18 of this issue. Circle No. 76.

The primary uses of this Morgen conveyor are bridging over excavations and obstructions to place concrete into forms and elevating concrete into forms or hoppers.





This metal culvert pipe was buried for 40 years!

"LIKE BRINGING up a time capsule," the foreman said. "This culvert pipe was buried under a road in Pottawattamie County, Iowa, and we dug it up this year (1958) when we moved the road. The pipe was in excellent condition—could be used again."

The stencil on the corrugated metal was perfectly legible. U. S. Steel checked the heat number stenciled on the metal and found that the steel was made in 1918! The pipe was fabricated by the Nebraska and Iowa Steel Tank Company, now known as the Eaton Metal Products Corp. The culvert sheets were made by the American Sheet and Tin Plate Company, then a subsidiary and now part of U. S. Steel.

The pipe is two feet in diameter and 16 feet long. The steel was not corroded because the corrugated metal was protected by a coat of zinc. It wasn't crushed or cracked because corrugated metal pipe is *flexible*—it deflects under load and gains support from the compressed soil around it. This is why only corrugated metal pipe can stand the crushing weight of deep fill *and* the vibration and impact of heavy loads over shallow fill.

Write for our free book, "USS Culvert Sheets." It tells how to select correct structure sizes and offers suggestions on how to install the pipe. Write United States Steel, Room 2801, 525 William Penn Place, Pittsburgh 30, Pa.

USS is a registered trademark

USS

United States Steel Corporation—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Supply—Steel Service Centers
United States Steel Export Company

United States Steel

Diesel generating plant features 60-kw output

A 60-kw diesel electric generating plant is announced by Jeta, Inc.

Known as Jetapower Model CD-6018, the plant is a unitized 3-phase, 60-cycle set, with an output of 120/208 volts ac. It has a speed of 1,800 rpm developed by a water-cooled 6-cylinder diesel engine. Standard equipment includes 24-volt electric-starting and battery-charging systems.

The control panel for both the engine and generator is completely enclosed and mounted as a single unit. The coupled engine and generator assembly is mounted on a fabricated steel subbase designed for rugged handling and operation.

For further information write to Jeta, Inc., Dept. C&E, 957 Saw Mill River Road, Yonkers, N. Y., or use the Request Card at page 18. Circle No. 113.

Improved towing winch to install on tractors

A new towing winch for installation on the new Caterpillar D8 and D9 tractors with direct or torque-converter drive is announced by the Hyster Co.'s Tractor Equipment Division.

Designated Model D89A, the unit features simplified gearing, high-speed reverse, easier-to-operate controls, new jaw clutch engagement spring, and a differential brake said to require only one adjustment in the life of the lining.

Installation can also be made on prior D8's through models with serial numbers beginning with 14A and 15A, and on all D9 tractors.

For further information write to the Hyster Co., Dept. C&E, P. O. Box 4318, Portland 8, Ore., or use the Request Card at page 18. Circle No. 47.

←For more facts, circle No. 355

The Jaeger unit can be used with any make of finishing machine. It is easily detachable from the finisher merely by removing a pin and disconnecting the hydraulic couplings, which are self-sealing.

Machine finishes concrete without added labor cost

The Jaeger Model JF 20 to 26-foot transverse finisher-float is designed to give a final machine finish to concrete pavements without added labor cost. It is towed by and operated from any finishing machine. No separate operator is needed.

It is equipped with both an oscillating screed and a transverse float, and has a total wheelbase of 17 feet 5 inches.

The standard screed has a 6-inch bottom; the float pan has a 30-inch bottom. Both are of the quick-crown-change type. The screed has a 4-inch oscillation with 3 speeds of 48, 76, and 130 strokes per minute. Sc... drive and the lifting and lowe... of screed and float pan are all ... draulically operated.

Quick 20 to 26-foot width adj... ability is provided by a telesco... tubular frame. A 20-foot meterin... screed and float pan are standard. Twelve, 24, 30, and 36-inch screed an... float extensions are available for 2... 24, 25, and 26-foot work.

For further information write t... The Jaeger Machine Co., Dept. C&... 550 W. Spring St., Columbus 16, Ohio... or use the Request Card at page 1... Circle No. 91.

BUILT TO LAST

It's The Depth That Counts!

Deeper retreads mean longer service under rugged conditions, and Southern Tire retreads are as much as 1/4 inch deeper than ordinary retreads. Lugs of all Southern Tire retreads have as much rubber as a new tire and more undertread than any rock service tire. Southern's modern 3-section, interchangeable-tread molds retread any tire—regardless of growth—without buffing to the breaker strips. Careful, expert workmanship, world's most modern equipment plus finest quality rubber manufactured to Southern Tire's own specifications guarantee *new tire mileage at approximately half the cost.*

No Costly Downtime

Southern Tire representatives pick up and deliver your tires AT YOUR JOB SITE . . . AFTER WORKING HOURS.

All Sizes — from 1100 x 24 to 33.5 x 33
Tread designs to suit every job.

Always Deal With an Independent — Developers of Every Major Improvement in The Industry.

SOUTHERN TIRE COMPANY
1414 Broadway
SHEFFIELD, ALA.
Phone Collect
EV 3-2312

For more facts, use Request Card at page 18 and circle No. 356

Announce motorized whee... for off-the-road vehicles

A motorized wheel for large off... the-highway vehicles is announced b... the General Electric Co. The unit i... designed to eliminate transmissions... axles, and gear shifts by includin... the electronic traction motor as a... integral, load-carrying part of th... wheel. Because motorized wheels ca... provide all-wheel drive from a singl... engine supplying electrical powe... through a direct-current generator... multiple engine arrangements ar... not necessary.

According to the manufacturer, dy... namic braking permits operators t... run at higher speeds with better ve... hicle control, due to infinite modu... lation of braking rate and extra re... serve capacity providing up to 1... mph deceleration per second.

The wheel uses a 45-inch rim upo... which the huge tubeless tires ar... mounted. The motor will develop 3... rim horsepower. Maximum speed fo... a 125-ton vehicle is 35 mph, using... four of the motorized wheels.

An overhead wire arrangement o... a diesel-electric generator mounted o... the unit can be used as power source...

For further information write t... the General Electric Co., Dept. C&E... 1 River Road, Schenectady 5, N. Y.... or use the Request Card at page 1... Circle No. 14.

More Profit from Road Widening and Trench Filling

Work the Power-Pack Way

Here's the easy, economical way to place sand, stone or hot mix on your road widening, shoulder and back-filling work. No other method or machine gives you the flexibility and low-cost production that you get with a Power-Pack Hopper Conveyor. It's a money-maker and a cost-cutter on small jobs and big projects.

Check these profit-making Power-Pack features:

- Quick change for right or left side discharge
- Handles up to 180 tons of sand, stone or hot mix per hour
- Only one operator . . . complete control of material
- Frees bigger, more costly equipment for other work
- Universal cable hitch—no special truck equipment needed
- Quick detachable towbar for transporting without trailer

Write or phone for information on the model you need—Model 600 for back-filling curbs and trenches up to 4' from pavement; Model 605 for road widening and shoulder work; Model 610 for filling trenches as far as 8' from side of truck.

POWER-PACK CONVEYOR CO.
836 E. 140th St. - GLenville 1-7670 - CLEVELAND 10, OHIO

For more facts, use Request Card at page 18 and circle No. 357

New plastic dredge pipe is durable, lightweight

Reinforced plastic dredge pip... said to be highly resistant to abra... sion, rust, salt, and erosion, is of... fered by Carsto Plastics.

A 10-inch-diameter section meas... uring 12 feet 6 inches long weigh... only 36 pounds, making placement o... pipe fast and easy by only one shore... man, states the manufacturer.

Available in 8, 10, 14, and 20-inch... diameters, the pipe can also be fab... ricated to meet special requirements... A strong patch can be made and ap... plied quickly should the pipe become... damaged.

For further information write ... Carsto Plastics, Dept. C&E, 2607 Ha... son St., Fort Myers, Fla., or use ... Request Card at page 18. Cir... No. 64.

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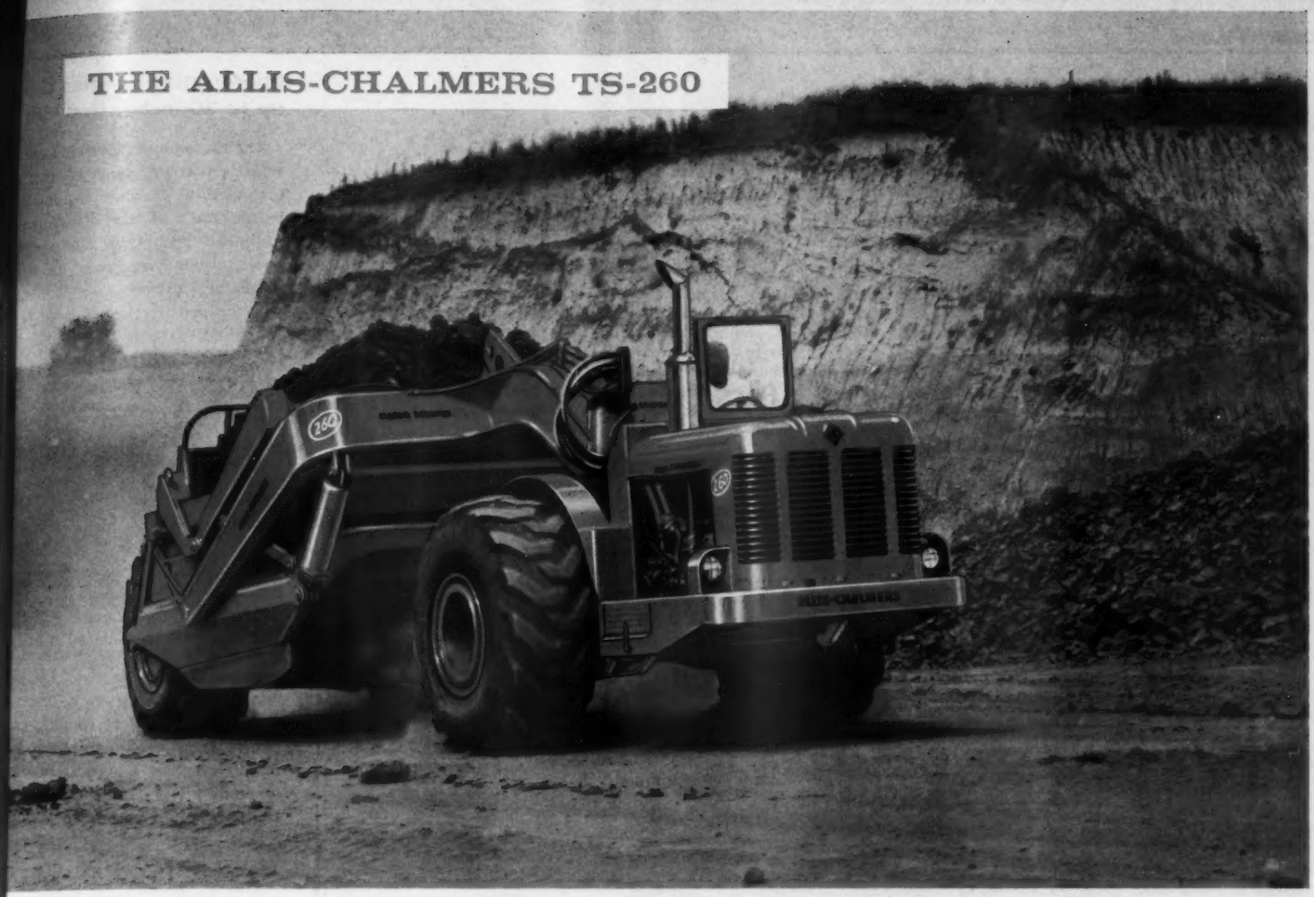
JULY, 195



Eats Up Big Yardage Faster than Anything in its Class

All over America, the 17-cu-yd TS-260 in action is convincing construction men that here's the top dirt hog in the medium-sized motor scraper field. It'll convince you, too—with its profit edge in horsepower, rimpull and exclusive positive penetration at the cutting edge.

One of the most commanding features of the TS-260 is its new Allis-Chalmers 16000 engine. This big, new power package delivers 230 horsepower at 2,000 rpm . . . more than 18 horsepower per struck yard of capacity . . . up to 12 percent more than most other units of comparable size. The 16000 engine also offers unmatched efficiency and fuel economy—result of controlled turbulence produced by a combustion system unique in the construction machinery field. There's over 30,000 pounds of rimpull in low gear . . . up to 25 percent more pull than others in the 15-yard class at normal loading speeds.

Only Allis-Chalmers offers positive hydraulic down pressure on the cutting edge. In the loading cycle, this means fast, easy penetration even into hard-packed material for big 17-cu-yd loads. Double-acting scraper jacks also provide full power for rapid lifting of loaded scraper bowl. Result—faster getaways for loaded scrapers, faster work cycles.

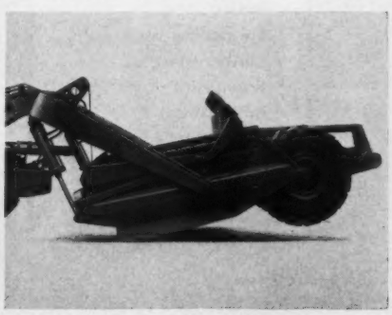
When the ground gets soft or muddy, KON-TORK differential automatically goes to work *shifting power from the wheel that slips to the wheel that grips* . . . enables the TS-260 to walk right through axle-deep mud if it has to. KON-TORK differential also permits normal steering and complete control of the unit when varying torque is being delivered to drive wheels.

The TS-260 is loaded with other important performance and production advantages, too. Original, low, wide bowl with curved bottom reduces loading resistance . . . speeds loading cycles. Smooth 90-degree turning ability permits 180-degree turns in less than 31 ft . . . an air-actuated transmission brake lets operators upshift swiftly and surely without double clutching.

Your Allis-Chalmers dealer will be glad to show you all of the high-performance features on the TS-260 . . . and to prove their worth in an actual demonstration on your job. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

The TS-260 has powered its way into leadership . . . in performance, dependability, profit for its owners

The TS-260's 230 horsepower provides more than 18 horsepower per struck yard . . . 30,000 pounds of rimpull at 1.9 mph.

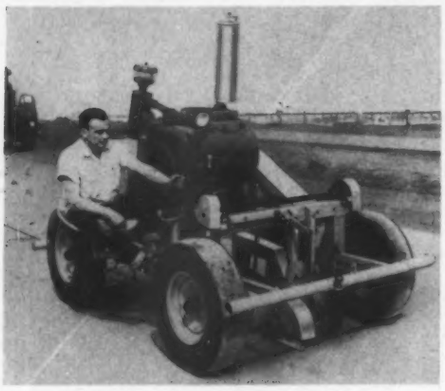


The TS-260 is the only scraper in its class to offer positive down pressure on the cutting edge for fast, easy penetration into hard-packed materials.

KON-TORK is an Allis-Chalmers trademark.

move ahead with ALLIS-CHALMERS . . . power for a growing world

For more facts, use Request Card at page 18 and circle No. 358



This concrete saw, designed for fast, efficient, and accurate sawing of longitudinal control joints, is powered by a Wisconsin 56.5-hp engine. Designated Clipper Model C-560, it is equipped with two independently controlled cutting heads positioned in tandem. Either blade may be quickly and easily positioned as the pivotal cutting heads are actuated by a fast-acting ball-bearing positive screw feed. The machine is self-propelled, utilizing a Graham 1½-hp transmission. Speeds of zero to 35 fpm are available, forward or reverse, with clutch control to start and stop. For further information write to the **Clipper Mfg. Co.**, Dept. C&E, Suite 102, 2800 Warwick, Kansas City 8, Mo., or use the Request Card at page 18. Circle No. 111.

Photocopier handles sizes up to 30 inches in width

The Streamliner Model 100 for the reproduction of engineering and architectural drawings is announced by the Ozalid Division of the General Aniline & Film Corp. The machine accommodates materials up to 30 inches in width with a synchronized printing and developing speed of 15 fpm.

According to the manufacturer, all controls are easy to reach, easy to read, and easy to work. Positive gravity ammonia feed eliminates the possibility of vapor lock. Other new features include a stacking tray for originals up to 11 inches long, and front stacking of prints up to 12×18 inches, with alternate rear print stacking of 24×30 inches.

The Streamliner 100 is 22 inches high and 46 inches wide, with a depth of 26 inches without feedboard, 38 inches with feedboard, and 50 inches including feedboard with rear stacking tray extended. Equipped with a 1,200-watt lamp, the machine operates on 110 volts ac.

For further information write to the Ozalid Division, General Aniline & Film Corp., Dept. C&E, 28 Corliss Lane, Johnson City, N. Y., or use the Request Card at page 18. Circle No. 129.

You can do A LOT OF... PROFITABLE JOBS with a GALION

GALION MOTOR GRADERS ARE THE MOST USEFUL UNITS OF CONSTRUCTION EQUIPMENT EVER BUILT

Rough grading
Fine grading
Windrowing
Bank cutting
Shoulder sloping
Ditching
Back-filling
Spreading material
Mix-in-place
Scarifying
Bulldozing
Casting and Loading
Snow removal
and many others.

That's why it pays to own Galions.

Write for the booklet, "How to Operate a Galion Motor Grader."

THE GALION IRON WORKS & MFG. CO.
General and Export Offices—Galion, Ohio, U.S.A.

GALION ESTABLISHED 1907

MOTOR GRADERS & ROLLERS

For more facts, use Request Card at page 18 and circle No. 359

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Wire or phone for a quotation on your next foundation job — *ANYWHERE IN THE WORLD*

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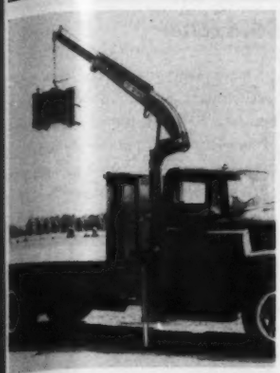
For more facts, circle No. 360



Designed to mount in a 13-inch space between the cab and truck bed, the Foco-Crane telescopes and folds out of the way when not in use.

Crane for truck mounting is lightweight, versatile

A lightweight crane for truck mounting, which elevates, turns, and extends hydraulically, is announced by the Focowil Corp.

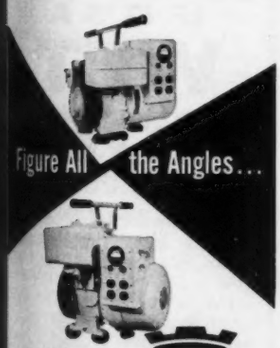
Called Foco-Crane Model F-4400X, the unit mounts in a 13-inch space between the cab and truck bed; it telescopes and folds out of the way when not in use. Two safety valves prevent overloading; two hydraulic legs prevent tipping and stress on truck frame and springs. The control-valve bank is so constructed that additional hydraulic circuits may easily be added to operate such boom accessories as hydraulic grabs, clam-shell buckets, and the like.

The unit lifts up to 2.2 tons; lifting height is 21 feet with boom fully extended to 15 feet 3 inches; swing angle is 270 degrees; weight is 1,200 pounds. Other models are available.

For further information write to the Focowil Corp., Dept. C&E, 79 W. Monroe St., Chicago, Ill., or use the card at page 18. Circle No. 99.

For more facts, circle No. 362→

Cleaning off compacted mud in one pass, this Danline broom, attached to an International tractor, is in operation on the Pennsylvania Turnpike just west of the Route 19 Interchange. According to the contractor, the Harrison Construction Co., of Pittsburgh, this brush, which has a 32-inch unit when new, saw two months of service last year and now measures 30 inches. For further information write to the **Newark Brush Co.,** Dept. C&E, Michigan Ave., Kenilworth, N. J., or use the Request Card at page 18. Circle No. 124.



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Read how exclusive PM features put job pay-outs *right back in your pocket!*

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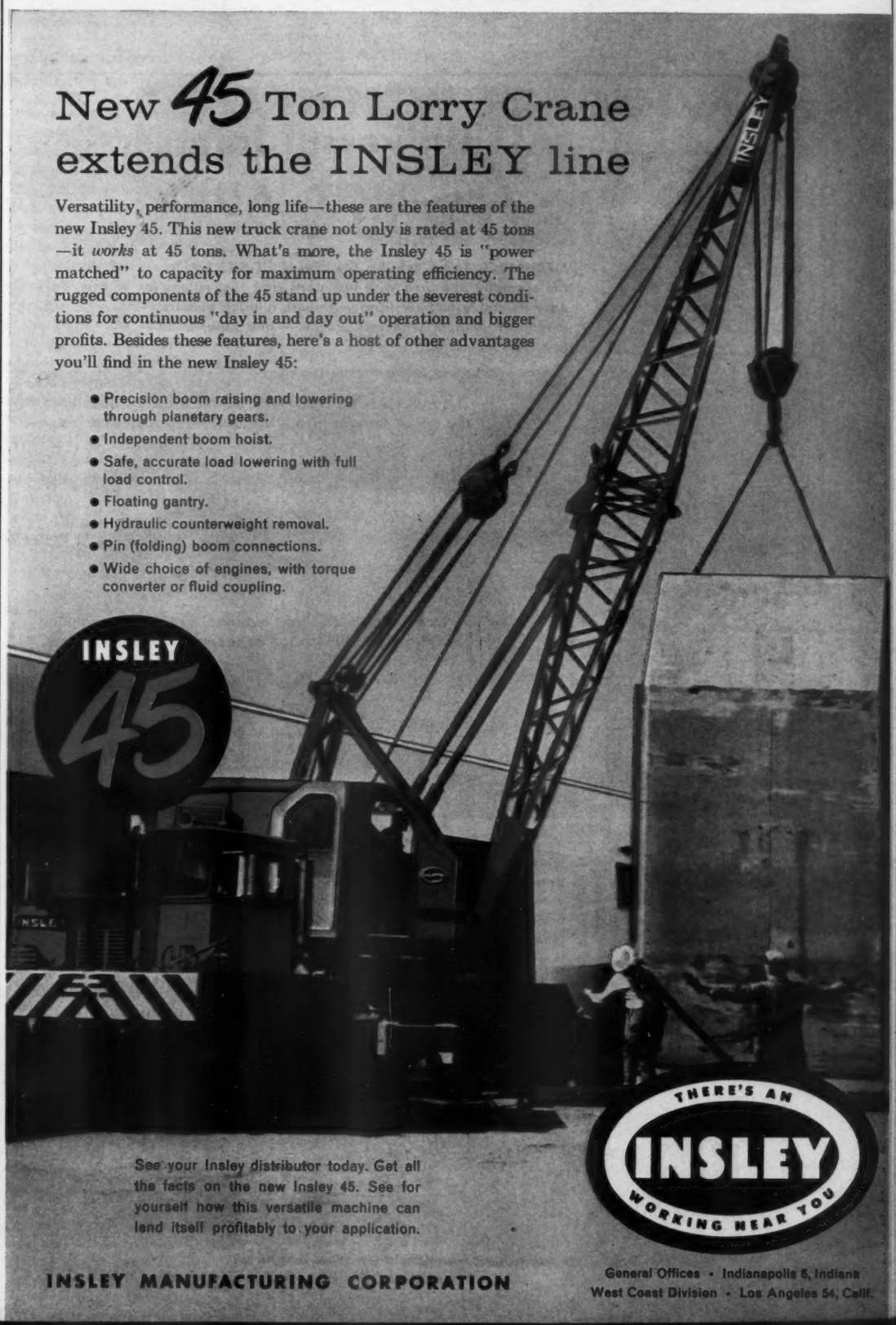
- Automatic spark advance puts $60 every 6 months in your pocket!
- Pushbutton start puts $30 per month in your pocket!
- Remote control puts $30 per month in your pocket!

Write for free demonstration. There's a PM Field Engineer near you.

Pacific Mercury
10852 Burbank Blvd.
Van Nuys, Calif.

Manufacturers of the Thomas Electronic Organ

For more facts, circle No. 361


New 45 Ton Lorry Crane extends the INSLEY line
Versatility, performance, long life—these are the features of the new Insley 45. This new truck crane not only is rated at 45 tons —it *works* at 45 tons. What's more, the Insley 45 is "power matched" to capacity for maximum operating efficiency. The rugged components of the 45 stand up under the severest conditions for continuous "day in and day out" operation and bigger profits. Besides these features, here's a host of other advantages you'll find in the new Insley 45:
- Precision boom raising and lowering through planetary gears.
- Independent boom hoist.
- Safe, accurate load lowering with full load control.
- Floating gantry.
- Hydraulic counterweight removal.
- Pin (folding) boom connections.
- Wide choice of engines, with torque converter or fluid coupling.
INSLEY 45
INSLEY
See your Insley distributor today. Get all the facts on the new Insley 45. See for yourself how this versatile machine can lend itself profitably to your application.
THERE'S AN INSLEY WORKING NEAR YOU
INSLEY MANUFACTURING CORPORATION
General Offices • Indianapolis 6, Indiana
West Coast Division • Los Angeles 54, Calif.

Diesel-powered model of rubber-tire roller

A new diesel-powered model (SP-54B-D) of its recently introduced 10-ton-capacity, rubber-tire, self-propelled roller (SP-54B) is announced by Bros, Inc.

The unit features a Hercules DD-226 4-cylinder diesel power unit which develops 65 horsepower at 2,000 rpm. Equipped with a torque converter, the roller travels at speeds up to 20 mph.

This new diesel-powered Bros 10-ton-capacity roller features a Hercules 4-cylinder diesel power unit which develops 65 horsepower at 2,000 rpm.

Other features of the new m... also incorporated in the ga... powered SP-54B, include lower c... of gravity for greater stability; ... proved power steering, reve... clutch, and transmission; brakes ... all four drive wheels; larger ... drums; and parking brake conne... directly to the drive shaft for ... safety.

Each wheel is equipped with a p... tic scraper for asphalt or seal-co... compaction work.

For further information write ... Bros, Inc., Road Machinery Divi... Dept. C&E, 1057 10th Ave S. E., M... neapolis 14, Minn., or use the Re... Card that is bound in at page 18. C... cle No. 103.

Kerosene warning light available to contractors

A flasher warning light said to ... erate at a maximum efficiency ... approximately 50 hours on ½ pi... kerosene is announced by Wm. ... Lee & Son.

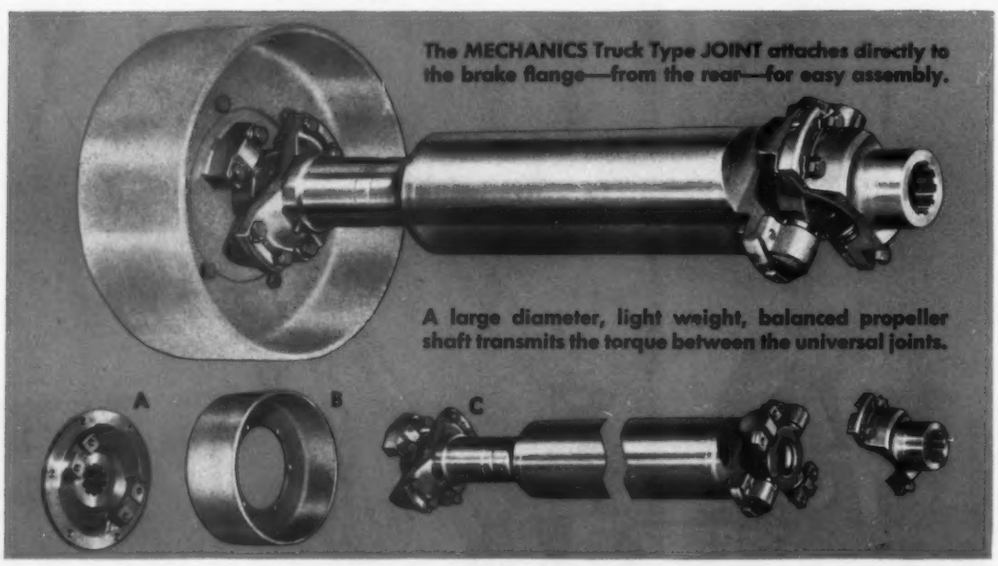
Called Rhewum-Blitz, the ... produces 50 to 60 sharp and ev... spaced flashes per minute thro... two prismatic plastic cover gla... measuring 3¼×8 inches each. ... cording to the manufacturer, ... unit produces a constant light ... tween flashes and magnifies ... source light 30 times through ... cover glass.

The Blitz is heavily construc... and totally weatherized, and pa... can be repaired or replaced w... a screwdriver.

For further information write ... Wm. W. Lee & Son, Dept. C&E, ... E. Jackson Blvd., Chicago 4, Ill. ... use the Request Card at page ... Circle No. 70.

ALL Universal Joints - Are NOT Alike

MECHANICS Roller Bearing UNIVERSAL JOINTS for Trucks are specially designed with less parts and connections for *easy assembly and servicing — smooth running balance — maximum strength with less weight* — and *long, trouble-free, safe operation.*

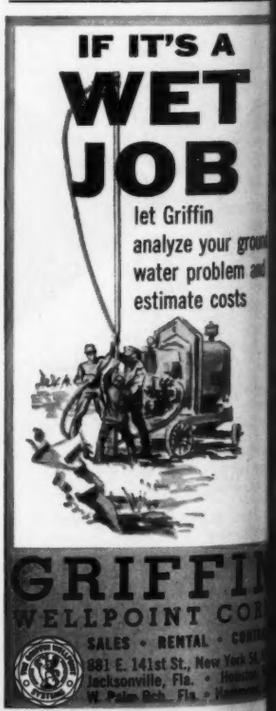

The MECHANICS Truck Type JOINT attaches directly to the brake flange—from the rear—for easy assembly.
A large diameter, light weight, balanced propeller shaft transmits the torque between the universal joints.
A
B
C

MECHANICS Truck Type JOINTS are assembled by attaching joint C to brake flange A independent of fastening between drum B and flange A; making possible servicing drum or joint, without disturbing other attachments or altering original brake drum or propeller shaft balance. Let MECHANICS engineers help give your trucks or other heavy duty machines these competitive advantages.

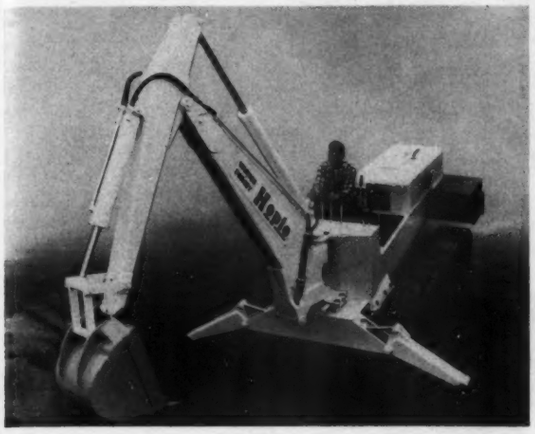
MECHANICS UNIVERSAL JOINT DIVISION
Borg-Warner • 2030 Harrison Ave., Rockford, Ill.
Export Sales: Borg-Warner International
36 So. Wabash, Chicago 3, Illinois

MECHANICS
Roller Bearing BW
UNIVERSAL JOINTS
For Cars • Trucks • Tractors • Farm Implements • Road Machinery • Aircraft • Tanks • Busses and Industrial Equipment

For more facts, use Request Card at page 18 and circle No. 363



For more facts, circle No. 364



The new Warner & Swasey crawler-mounted undercarriage for the Hopto Model 200 backhoe is powered by a 6-cylinder engine rated at 54 horsepower at 1,800 rpm and attains a speed of 2 mph. A rubber-tire model is also available.

Two new undercarriages announced for backhoe

Two new undercarriages for the Hopto Model 200 ⅜-yard backhoe are announced by the Badger Division of The Warner & Swasey Co.

The first is a new self-propelled rubber-mount which features a 16-foot turning radius for maneuverability in tight places, 25-mph mobility, individually controlled hydraulic outriggers, and a swivel seat to face the controls of either the carrier or the boom. The Hopto backhoe equipped with this undercarriage mount is now designated Model SPR.

The second model is a new crawler-mount designated Model 200 SPC. It features a heavy-duty frame, new counterbalanced design for stability, cast manganese steel idler sprockets, and a speed of 2 mph.

The crawler is designed for off-the-road operations on either rough or soft ground. The tracks are 17 inches wide and 9 feet 6 inches long, giving the unit a bearing pressure of 4.5 psi. It has power brakes and chain drive. The power unit is a 6-cylinder engine rated at 54 horsepower at 1,800 rpm. This engine supplies power for both the crawler and the backhoe.

For further information write to the Badger Division, The Warner & Swasey Co., Dept. C&E, 1124 W. Fifth St., Winona, Minn., or use the Request Card at page 18. Circle No. 106.

Special anti-seizing, anti-galling lubricant

A specialized lubricant designed to prevent galling and corrosion of tapped threads in drilling equipment for construction and quarrying is announced by the Keystone Lubricating Co.

Known as No-Gall, the lubricant has a special zinc base and is made in plastic consistency for brush or paddle application. According to Keystone, it does not dry out or harden.

For further information write to the Keystone Lubricating Co., Dept. C&E, 3100 N. 21st St., Philadelphia 32, Pa., or use the Request Card at page 18. Circle No. 104.

COMMENT from the BUTLER ENGINEER

Of a new baby's birth ... and Ready Mix on the Moon

A new baby is born and not only that, but is born in full maturity — completely adult and functioning well. It's the Concrete Plant Manufacturers Bureau of the National Ready Mixed Concrete Association. For short it's called CPMB. Remember it, for it will be of great importance to the Ready Mixed industry.

The CPMB is comprised of Butler Bin Co., and six other manufacturers of concrete plants.

The Bureau is counseled by Vince Ahearn, the highly respected Executive Secretary of the NCMA, and Ken Tobin has been made Executive Secretary of the CPMB.

The entire purpose is to set up approved designs, specifications and standards. Nomenclature too, is to be standardized, for this is an area which at times has been pretty cloudy. In other words, to obtain an exact definition of "automatic batcher, semi-automatic, manual" and many other technical terms.

The whole effort definitely redounds to the benefit of the producers of Ready Mixed Concrete.

Of great significance is the high degree of automation in Road-builders and Ready Mix Plants designed today. NOT very long ago an order for an automated plant was, as the booksellers say, "Excessively rare." Now an order for a manual plant makes everyone wonder what the Sam Hill it's to be used for.

Today we're momentarily expecting someone to say "Look, I'm in the market for a plant to batch concrete on the moon." Well, we haven't one quite as portable as that — yet — but we will when there's enough demand.

The Butler Engineer

BUTLER BIN COMPANY
WAUKESHA, WISCONSIN

For more facts, circle No. 365

To Keep Power Equipment Running To Stand Guard on the Job . . .

THE ANSWER IS Anthes

The WEATHERCAP®

Rain cannot get in a vertical exhaust protected by Weathercap. Range of sizes to fit 1" to 6⅝"O.D. Fully automatic OPENS at the first touch of exhaust pressure, CLOSES the instant the engine stops . . . Now standard equipment on over 35 nationally known names in tractors and powered equipment.

The FLAME-GUARD Construction Torch

New self-righting torch with an exclusive square-type burner which STAYS LIT in the worst weather . . . Burning time of 24 to 48 hours . . . Quality Anthes construction throughout.

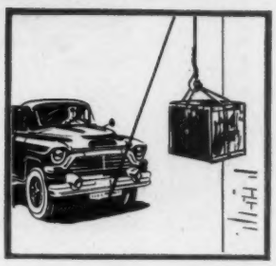
Get the full answers and literature from

Anthes Co.
FORT MADISON, IOWA

For more facts, circle No. 366

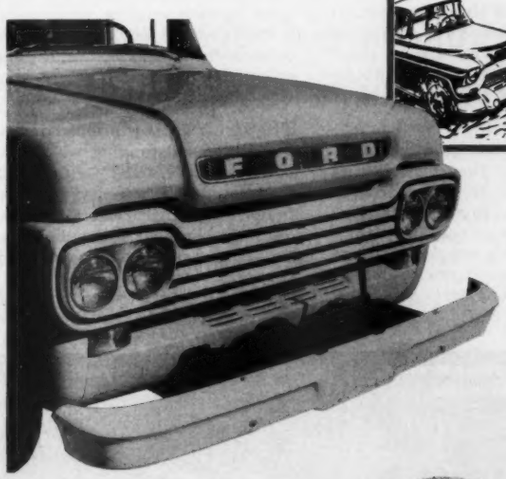
a NEW BRADEN winch for the NEW FORD

4 wheel drive truck



BRADEN MODEL LU2-15— a front end winch kit for the FORD F100 and F250 (4x4). Completely equipped with base angles and cable roller assembly to adapt to frame extensions for the truck, and all driving parts. This compact, lightweight winch has a safe working load of 8,000 lbs., and greatly adds to the usefulness of this new, versatile FORD truck.

The BRADEN LU2 model is also available in kits for ½ and ¾ ton (4x4) Chevrolet, Dodge, International and GMC trucks. The same type quality materials and workmanship, found in heavier winches, have gone into making this compact, easy to-operate winch. Write for information on the models you are interested in.



Replacement parts are available through BRADEN distributors or from factory

BRADEN WINCH COMPANY
P. O. Box 547, Broken Arrow, Oklahoma

BRADEN Winches
In service around the world

For more facts, use Request Card at page 18 and circle No. 367

How would you load rock this size?

Shoot to size? Cable and lift? Shovel?

There are only two tractor shovels in the business built for work like this . . . the Allis-Chalmers 225-hp, 4-yd HD-21G and the 150-hp, 3-yd HD-16G. They're in a class by themselves. If you move ore, rock, gravel or overburden . . . if you need a machine that will pioneer, rip, load and handle a multitude of jobs, see them in action. They'll go it alone or team up with other machines to help improve your profit.

Increase bidding power—You're way ahead in bidding flexibility with a big-capacity tractor shovel. Jobs miles away are simple transport operations with Allis-Chalmers BIG tractor shovels. Forget about expensive dismantling, problem loading, hauling and setup again at job site.

Handle scattered jobs economically—*Wherever* there's loading to do on a new job, these two dependable units "walk" to work . . . through mud—over rough terrain—those spots where *only crawlers* can go! They build their own roads—dozing, cutting, filling, compacting . . . load up to 4 yd at a clip*

What's more . . . BIG HD-21G's —16G's are not single-purpose units. They're pioneering machines. They'll open up new cuts or make quick work of clearing, piling stumps, brush or boulders. And, of course, loading, stockpiling and cleanup are their steady specialties.

They're ripping specialists—Long track, outstanding balance and power enable HD-21G's—16G's with rear-mounted Tractomotive rippers to open up tough material over *two feet deep*. Enough hydraulic penetrating pressure is developed to lift the tractor itself off the ground.

You *can afford* to use these big tractor shovels on many utility chores —from breaking up concrete roadbeds with 72,700-lb break-out force, to complete one-man, one-machine demolition operations. When you apply the abilities of the HD-21G—HD-16G to your own jobs, you'll see how either one or both of these production units can cut costs . . . put a *sharper point* on your favorite bidding pencil.

See your Allis-Chalmers dealer—He's the ONLY man with tractor shovels from 72 to 225 hp . . . from 1½ to 7¼ yd. He'll be happy to fill in the details—show you an Allis-Chalmers tractor shovel in action. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wis.

They walk to work.

Big capacity for big jobs.

Moving from job to job is easy.

move ahead with

ALLIS-CHALMERS

power for a growing world

*Special-purpose buckets available up to 7¼ yd.

For more facts, use Request Card at page 18 and circle No. 368

New semiautomatic welder offered for hardfacing

The American Manganese Steel Division announces a new, completely redesigned semiautomatic welder for hardfacing in the shop or in the field. Light and portable, the machine is said to be extremely simple and reliable in operation and maintenance. It is used to build up dipper teeth, dipper lips, crusher rolls, and other parts that cannot be hardfaced with fully automatic equipment.

The Amsco semiautomatic welder is connected to any 300-amp or larger dc power source, and feeds hardfacing wire through a hand-held electrode holder whenever the holder switch is depressed. The holder switch also gives remote inching control as required.

The machine is completely enclosed to avoid shock hazards, and to protect the reel of wire.

For further information write to the American Manganese Steel Division, American Brake Shoe Co., Dept. A, Dept. C&E, 389 E. 14th St., Chicago Heights, Ill., or use the Request Card at page 18. Circle No. 112.

GIVE YOUR CRANE OPERATOR A BREAK!

EAGLE NI-HARD AND SEMI-STEEL BREAKER BALLS for faster, easier demolition, breaking and crushing.

Tough semi-steel for regular jobs, 1500 to 6500 lb. Abrasion resistant Ni-Hard nickel-chromium iron alloy for the tougher jobs, 1500 to 4000 lb. The pear shape packs the wallop. Easily replaced hook. Also spherical balls for use with crane magnets. Ask for Bulletin 558. Eagle Pile Hammers and Leads in Bulletin 1255.

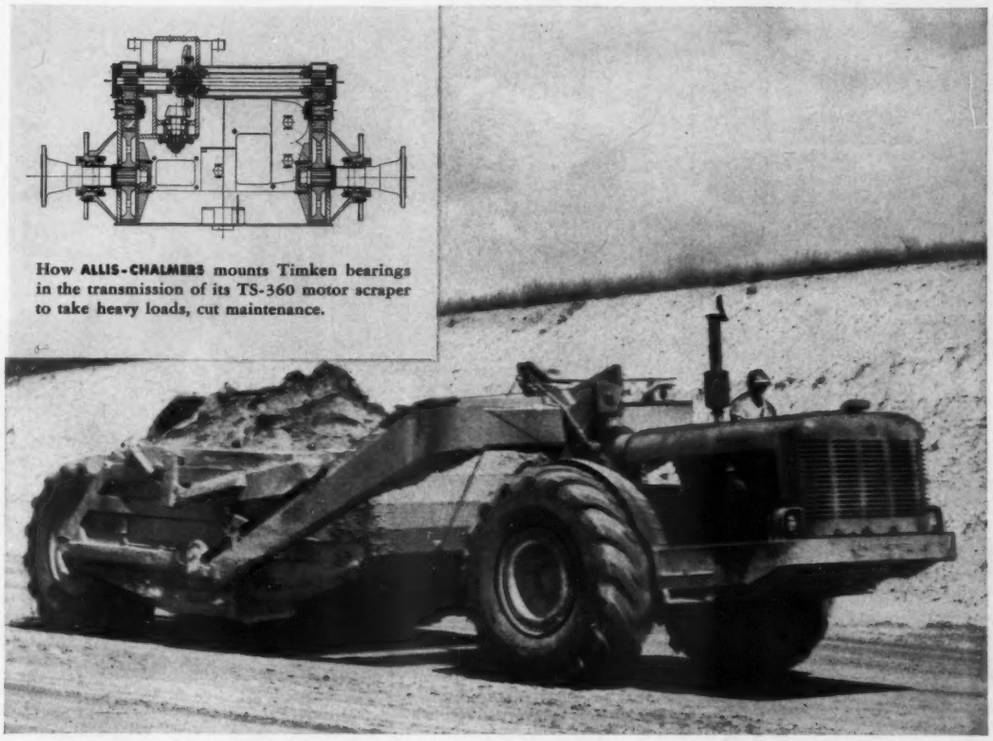
SINCE 1872

EAGLE IRON WORKS
159 Holcomb Ave.
Des Moines, Iowa

EAGLE SAND AND GRAVEL WASHERS • ROAD BASE MIXERS • DREDGE EQUIPMENT

For more facts, circle No. 369

Shown breaking concrete for the installation of 11,000 feet of 24-inch gas mains for the Michigan Consolidated Gas Co., this Ottawa Hydra-Hammer is owned and operated by the VanOrden & VanEss Co., of Grand Rapids. According to Stewart J. Kniff, job superintendent for the firm, "The one-man-operated Ottawa Hydra-Hammer broke out 8 to 12-inch-thick concrete with blacktop surface at a rate of 350 to 400 feet per day, which was at least one-third more than our normal way of breaking with air compressors—and we saved the cost of four men and two 105-cfm compressors. After pipe was laid, we used the Hydra-Hammer to tamp the backfill, eliminating two more men and another compressor." For further information write to the **Ottawa Steel Division, Young Spring & Wire Corp.**, Dept. C&E, 435 S. Main, Ottawa, Kans., or use the Request Card at page 18. Circle No. 120.



How **ALLIS-CHALMERS** mounts Timken bearings in the transmission of its TS-360 motor scraper to take heavy loads, cut maintenance.

Big capacity, big power for big economy, 28 Timken® bearings keep it rolling

THIS Allis-Chalmers TS-360 motor scraper digs, hauls and spreads 20 yards at a crack. And its big, 280-hp diesel engine means more trips per hour. With 28 Timken® tapered roller bearings to *roll* the loads—in outer and inner wheels, pinion, differential, idler gear and cable unit—TS-360 users get built-in trouble-free operation, long bearing life with minimum maintenance. Here's why.

1) *The tapered construction* of Timken bearings lets them take heavy radial and thrust loads in *any* combination.

2) *Full line contact* between rollers and races gives Timken bearings *extra* load-carrying capacity.

3) *By holding shafts concentric* with housings, Timken bearings make closures more effective in keeping dirt out, lubricant in, maintenance down.

4) *And Timken bearings are made of finest steel.* We make it ourselves to be sure. We're America's only bearing maker that does.

For 42 years Timken bearings have been making construction machines better. To be sure you get better machines, make sure they're equipped with Timken tapered roller bearings.

The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO". *Makers of Tapered Roller Bearings, Fine Alloy Steels and Removable Rock Bits.*

This symbol on a product means its bearings are the best.

WHEN YOU BUY TIMKEN® BEARINGS YOU GET...

1. Quality you can take for granted
2. Service you can't get anywhere else
3. The best-known name in bearings
4. The pace setter in lower bearing costs

BETTER-NESS rolls on TIMKEN® tapered roller bearings

First in bearings for 60 years

For more facts, use Request Card at page 18 and circle No. 370

Equipped with a crane hook, the Model 620 Econmobile reaches a maximum height of 33 feet. All attachments are interchangeable with Model 600.

Material-handling unit for job-site application

A new job-site material-handling vehicle called the Model 620 Econmobile is announced by the American Road Equipment Co.

The lifting height of the basic machine is 20 feet 6 inches. With available tower extensions, lifting height can be increased to 27 feet 8 inches or 30 feet 6 inches; with a crane hook, maximum lifting height is 33 feet.

Lifting capacity has been increased to 4,000 pounds for the basic unit; to 3,000 pounds when lifting to 27 feet 8 inches; and to 2,000 pounds when lifting to 30 feet 6 inches.

Power is supplied by a Contin Model F226 6-cylinder engine veloping 73 horsepower.

Total weight of the Model 6 1,465 pounds heavier than the Model 600.

Other improvements include automatic self-leveling; impr hydraulics and valves; and a tilt hoist, oil reserve tank, and last box.

For further information write the American Road Equipment Dept. C&E, 4201 N. 26th St., Om Nebr., or use the Request Card page 18. Circle No. 69.

Cutting tool saves time for pipeline contractor

Work progressed rapidly in ope up an abandoned water main in B mont, Calif., by using a specially signed cutting tool available fr Fairley, Inc., of Belmont. The cuts through ½-inch steel plate walking speed, and is used for fa cutting large-diameter pipe.

E. T. Haas, pipeline contrac employed it to open up an ab doned large-diameter main to ins smaller-diameter line, using the ol main as a conduit. The procedure portedly afforded a big saving man-hours in digging up streets cutting through main. Some 18 feet of line was installed in this m ner.

For further information write Fairley, Inc., Dept. C&E, 407 Ha Blvd., Belmont, Calif., or use the R quest Card at page 18. Circle No.

For more facts on these produ circle the indicated number on Request Card at page 18.

Barber-Greene Model 879-B—the universal finisher for any size job—shown paving street for housing development. Write for information on this famous finisher.

The asphalt finisher for all jobs large or small

. . . Barber-Greene 879-B

With introduction of the Model 873 finisher, which paves on crawlers and travels on rubber—and with the recent Barber-Greene announcement of two new heavy-duty finishers for the ultimate in high-capacity, continuous operation—there have been many questions about selection of the *right* finisher.

Whatever the job, the new, improved Barber-Greene Model 879-B is the universal asphalt paving machine. Unmatched for jobs of all types and sizes, this famous finisher is the paving standard of the world. Its exclusive tamping-leveling principle gives unequaled mat quality while laying any asphalt mix. New improvements include: 25% more power, new transmission, 60% greater hopper capacity, 45% faster paving speed, faster travel speed, new tamper design, improved screed for longer life, and new crawler design.

FOUR DIFFERENT FINISHERS

Model 873—paves on crawlers . . . travels on rubber. Designed for scattered jobs, from driveways to highways.

Model 879-B—the universal finisher for all types and sizes of jobs.

Models SB-60 and SA-60 — pneumatic-tired or crawler-mounted — heavy-duty, high-capacity, high-speed machines.

59-11-F

These are just the high spots. Ask for complete information on all four.

Barber-Greene BG
AURORA, ILLINOIS, U.S.A.

CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

For more facts, use Request Card at page 18 and circle No. 371

CONCRETE TESTERS

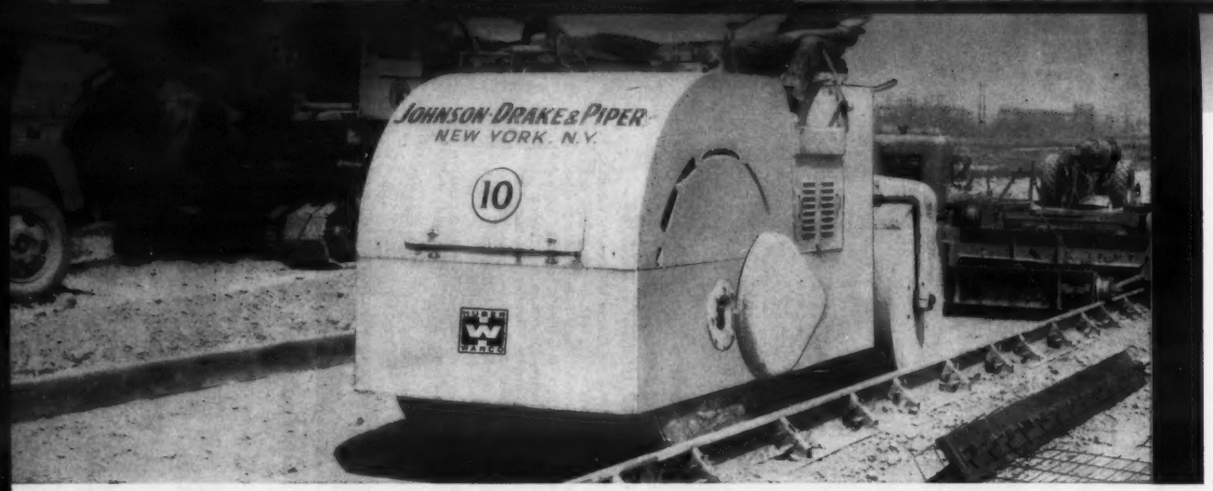
THE WORLD'S FINEST LOW COST PLANT AND JOB-SITE TESTERS For CYLINDERS CUBES BLOCKS BEAMS PIPE

IF IT'S A CONCRETE TESTE YOU NEED-GET IN TOUCH WI

FORNEY'S, In
TESTER DIVISION
P. O. BOX 310 · NEW CASTLE,

For more facts, circle No. 372

Huber-Warco on the job



Design of the Huber-Warco 8-12 ton tandem permits the unit to compact base gravel close to steel forms.

Huber-Warco on the job

Huber-Warco tandems and 3-wheels handle compaction assignments for Johnson, Drake & Piper on New York's Erie Thruway project.

H-W Units at work on Erie Thruway

Handling the compaction work for Johnson, Drake & Piper on project FAET-564 on the new Erie Thruway were three Huber-Warco rollers—two 10 ton 3-wheels and an 8-12 ton tandem.

Known as the West Seneca project, it involved 4.19 miles of pavement including interchanges, and seven bridges.

On this job the Huber-Warco rollers compacted one and a half million yards of dirt, about 10,000 yards of bank-run stone, and 32,000 yards of foundation course gravel for the road bed.

For rolling inside the steel forms, Johnson, Drake & Piper used their Huber-Warco tandem. The roller followed directly behind the form grader. The design of this Huber-Warco tandem enabled the operator to compact the material right up to the forms. The extra operator visibility and ease of steering helped simplify the job throughout the many hours of precision work.

Huber-Warco tandem and 3-wheel rollers offer many distinct advantages that add up to more efficient and economical rolling. They each offer a torque converter and two-speed transmission. In addition, these units feature a tail-shaft governor. Within close limits, this tail-shaft governor maintains the rolling speed set by the operator, regardless of the grade.

Another important feature is a completely adjustable guide roll assembly that eliminates road "scuff" caused by looseness. Easy adjustment makes it possible to keep the guide roll assembly in factory-perfect alignment for the life of the roller.

In the Huber-Warco 3-wheel roller line both standard and variable weight rolls are available in a range of from 10 to 14 tons. The tandem line consists of seven models ranging from 3-5 to 10-14 ton.

Your Huber-Warco distributor can give you specifications on the Huber-Warco tandem and 3-wheel roller line. Contact him soon and be ready for smoother, more profitable rolling operations.

Torque converter and 2-speed transmission add to efficient compaction by this Huber-Warco 10-ton 3-wheel roller.

Huber-Warco Company

MARION, OHIO

Terms up to 36 months and rentals available . . . contact your Huber-Warco distributor.

For more facts, use Request Card at page 18 and circle No. 373

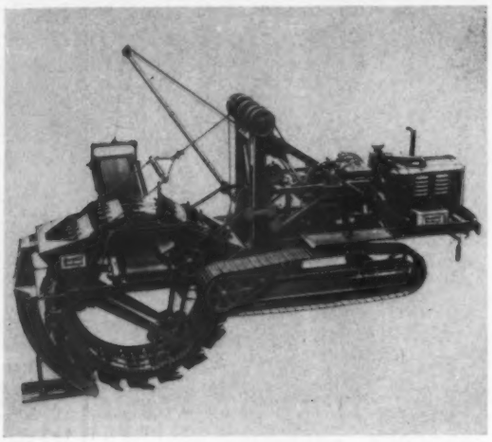
HUBER WARCO

TANDEM ROLLERS

MOTOR GRADERS

MAINTAINER

3 WHEEL ROLLERS



The Gar Wood-Buckeye 318 digs up to 7 feet in depth, with widths of cut up to 44 inches. Special features include torque-converter drive and full hydraulic action.

Medium-duty ditcher for pipeline work

A medium-duty pipeline ditcher, featuring a torque-converter drive and complete hydraulic action, is offered by Gar Wood Industries, Inc.

Known as the Gar Wood-Buckeye 318, the new ditcher digs up to 7 feet in depth, with widths of cut up to 44 inches. It is transportable on standard trailers, without any special tear-down.

The Torque-o-matic drive works in conjunction with a tail-shaft governor. With this arrangement, the digging wheel maintains a constant speed regardless of changing conditions, since the governor regulates engine torque as required. A torque-converter throttle permits the operator to change his output by 40 percent within any gear range without loss of horsepower.

The machine also features a hydraulically operated wheel hoist and a hydraulic conveyor drive. Finger-tip controls allow the operator to control the placement of spoil by varying the speed of the spoil conveyor. Spoil can be discharged from either side of the ditcher.

For further information write Gar Wood Industries, Inc., Dept. C&E, 36253 Michigan Ave., Wayne, Mich., or use the Request Card at page 18. Circle No. 130.

New plasticized cement splices concrete piling

A fast-setting cement for splicing prestressed-concrete piling is available from The Chargar Corp.

Known as Florok's plasticized cement, it is supplied in ingots that feature a low melting temperature and an easy pour.

According to the manufacturer, it has the ability to withstand abuse and strain without losing bond or shattering under impact.

For further information write The Chargar Corp., Dept. C&E, 1011-R Dixwell Ave., Hamden, Conn., or use the Request Card at page 18. Circle No. 48.

6 reasons for specifying and using SERVICISED membrane forming concrete curing compounds

1. Provide lowest unit of moisture loss
2. Meet official specifications for each particular type
3. Sprayed or painted on vertical surfaces, they will "stay put"
4. Save time, labor, material
5. Will not cake in the drum
6. Guaranteed uniform quality and results

WHITE PIGMENTED TYPE Servicised White Pigmented Curing Compound provides a film or membrane capable of reflecting heat. It is widely used in areas where atmospheric temperatures exceed 80°F., and properly applied, will reduce concrete temperatures approximately 15°F. Excessively high temperatures during the early hardening period tend to jeopardize setting of concrete and reduces its final strength. High quality inert pigments added to the basic compound also prevent too thin or uneven coverage, as improper application is readily seen. Used on all U. S. Engineers work.

CLEAR TYPE Servicised Clear Curing Compounds are available in both Wax-Resin and Resin Base Types. Only pure synthetic resins are used with carefully controlled proportions of oils and waxes, etc., in a petroleum solvent to insure a clear, impermeable membrane. Both types can be supplied with a fugitive dye which materially assists in securing proper coverage, and which disappears after application.

WAX-RESIN BASE. A general purpose compound, usually used on mass concrete, pavements. Has excellent water retention properties, allowing slow curing of the concrete which eliminates checking. Dries rapidly and forms a film of uniform texture.

RESIN BASE. Recommended for buildings, offices, architectural concrete, etc. The pure resins, oils and other ingredients present a clear film which does not materially alter the appearance of concrete and it permits early application of adhesives, paint, etc.

AIR ENTRAINING AGENT Servicised Air Entraining Agent is a highly active, homogenous and clear solution. A relatively small quantity produces maximum air dispersion, yet it is not so critical as to create wide fluctuations in the amount of entrained air should slight variations in the amount used occur. It will not settle out in storage or gum the dispenser, and its action is not jeopardized by the presence of Calcium Chloride. Servicised Air Entraining Agent meets all official specifications, comes ready to use and requires no additional ingredients or treatment before being used. Available in 5 gallon and 55 gallon drums.

Write for special circulars on Curing Compounds and Air Entraining Agent

SERVICISED PRODUCTS CORPORATION
6051 WEST 65th STREET • CHICAGO 38, ILLINOIS

For more facts, use coupon or Request Card at page 18 and circle No. 374

SYNTRON Pulsating Magnet CONCRETE VIBRATORS

increase concrete product quality

SYNTRON Concrete Form Vibrators eliminate air pockets, honeycombs, and voids in concrete production, such as prestressed and precast concrete, columns, foundations, wall forms, concrete pipe and other molded concrete products, in addition to being applied to cement, sand and aggregate bins to keep them free flowing.

SYNTRON Electromagnetic Concrete Vibrators produce 3600 powerful, instantly controllable vibrations per minute. They are free of belts, pulleys, gears and other mechanical wearing parts, which means dependability of operation and low maintenance.

SYNTRON Concrete Vibrators are available in two sizes, complete with a quick-acting vise clamp, 25 ft. cable and VW controller.

Write for complete catalog data

SYNTRON COMPANY
227 Lexington Ave. Homer City, Pa.

Other SYNTRON Equipment of proven dependable quality

BIN VIBRATORS

VIBRATORY FEEDERS

ELECTRIC SAWS

For more facts, use Request Card at page 18 and circle No. 375

Portable plant loads, screens simultaneously

Barber-Greene announces the Model PS-70 high-capacity portable screening plant designed to screen and load at the same time.

Consisting of a vibrating screen, portable belt conveyor, reciprocating feeder, and hopper or trap for feeding, the plant can be towed from job to job as a single unit, without disassembly. The screen is merely folded under the conveyor for travel.

Plants are available in various sizes to suit various requirements.

The entire operation is readily controlled by means of a head pulley clutch located at the head end of the conveyor. This clutch controls the feeder and conveyor but allows the screen to operate continuously.

For further information write to the Barber-Greene Co., Dept. C&E, 400 N. Highland Ave., Aurora, Ill., or use the Request Card at page 18. Circle No. 57.

Designed to produce sized aggregates for all types of construction work, the Model PS-70 screens and loads simultaneously.

Additive for blade water speeds masonry cutting

Brick Research Associates announces a new chemical additive for use in the cutting water of a masonry saw to improve blade performance with concrete block.

Named Blade-Ade, the chemical dissolves in the water system of the masonry saw, and cuts chemically into the concrete block at the same time the blade cuts.

According to the manufacturer, Blade-Ade is effective only where the blade is cutting and will not harm the rest of the block being cut. It is not corrosive or caustic.

When cutting concrete block or similar products, Blade-Ade reportedly decreases the wear on the blade and extends blade life, as well as speeding cutting. It can be used with either abrasive or diamond blades.

For further information write to Brick Research Associates, Dept. C&E, 604 W. Dartmouth, Kansas City 13A, Mo., or use the Request Card at page 18. Circle No. 4.

Big Ripper Tackles Tough Rock Jobs

Designed to use full power of IH TD15, TD18, TD20 or TD24

The tremendous power of the IH TD15, TD20 or TD24, plus the 10,000-pound Greenville tractor-mounted rock ripper, shatters rock and packed earth for easy scraper loading. On many jobs explosives, shovels and trucks are eliminated. Put this power-packed team to work for you. Your IH dealer can give you the facts. Let him show you how you can save as much as 25% on any earth or rock moving job.

LIVE SWIVEL ACTION
Shanks swivel 15° in either direction . . . follow tractor like a trailer. Points have live action that shatters rock like a jack hammer.

RUGGED POWERFUL SHANKS
Scientific contour gives extra strength at strain points and pulls points down deep . . . rocks roll out and clear of headroom. Blade of tough, heat-treated, manganese-moly steel. Mount one, two or three shanks as needed.

POSITIVE CONTROL
Double-acting hydraulic system provides fingertip control and puts full tractor weight on points for fast, deep penetration.

DRAWBAR TAKES PULL
The ATECO drawbar replaces the tractor drawbar and drawbar brackets. Clevis is accessible with ripper installed.

RIP AT ANY DEPTH
Easily adjusted to permit settings as deep as 24". Points are always at most desirable angle for best penetration and splitting action. Points are easily replaced.

WRITE FOR Greenville Bulletin IH-658. It gives complete data on the Greenville-Ateco ripper.

See it at your International-Harvester Dealer's

GREENVILLE
STEEL CAR COMPANY
ATECO DIVISION
Greenville, Pennsylvania

For more facts, use Request Card at page 18 and circle No. 376

FLECO. **LAND CLEARING SPECIALISTS**

A Fleco TD9 Treedozer on a Cat D9 Tractor uproots and pushes aside growth on a clearing operation. Operating in 2nd and 3rd gears, the TD9 had 21 acres cleared in 8 hours. A Fleco Heavy Duty Cab Guard protects operator and equipment.

CLEARING COSTS CUT 75%

with **Fleco** *Treedozers and Rock Rakes!*

The cost of clearing land of thick growths of small and medium trees and boulders ran $290 per acre before a Fleco team of Treedozers and Rock Rakes took over the job.

In spite of tough terrain and rocky going, the Treedozer took out the growth at a rate of 1¼ to 1½ acres an hour, while the Rock Rake windrowed 1 - 1¼ acres of debris each hour.

Clearing costs fell to less than $75 an acre, a saving of 75%!

The massive Knockdown Beam, independently controlled, hits high on the tree to obtain maximum leverage. The V-blade dips under the roots to take down the tree and pushes the debris aside.

Operation clean-up uses a Fleco Rock Rake, with Top Guards, to rake and pile debris in soil-free, easy-to-burn stacks. Two Rakes are necessary to keep up with high Treedozer production.

FLECO®
Rock, Root, Brush and Traxcavator Rakes • Tree Cutters • Stumpers • Undercutters • Cab Guards • Rootcutters • Root Plows • Tree Dozers • Rolling Choppers • Heavy-duty Tool Bars.

There's a Fleco Treedozer for Cat D9, D8, D7 Tractors . . . Rakes for every model. Your Caterpillar-Fleco dealer can lend a hand in selecting your cost-cutting clearing equipment — ask him!

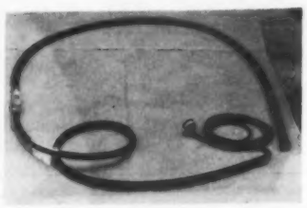
FLECO Corporation
P.O. Box 2370, Jacksonville, Florida

Fleco International, Inc. • Fleco Overseas Limited
P.O. Box 820, Nassau, N.P., Bahamas

For more facts, use Request Card at page 18 and circle No. 377

Motor-in-head vibrator is high-amplitude unit

The Stow Mfg. Co. offers a powerful motor-in-head-type Hy-Cycle vibrator that operates from a 230-volt 180-cycle 3-phase generator. High amplitude through the elimination of brushes and commutators, plus the speed of over 10,000 vibrations per minute, reportedly results in high efficiency in vibrating and moving large masses of the stiffest concrete.



The unit is available with two different sizes of vibrator heads: $1\frac{3}{4}\times20\frac{3}{4}$ inches long and $2\frac{3}{8}\times19\frac{3}{4}$ inches long. A waterproof on-off switch, located 7 feet from the head, can be immersed completely in the concrete. Flexible 4-ply handling casing is available in lengths of 7, 14, and 21 feet.

Stow Hy-Cycle vibrators can also be furnished with 110-volt 180-cycle 3-phase windings for use on existing generators.

For further information write to the Stow Mfg. Co., Dept. C&E, 40 Shear St., Binghamton, N. Y., or use the Request Card at page 18. Circle No. 93.

Multi-application rake clears 135-inch swath

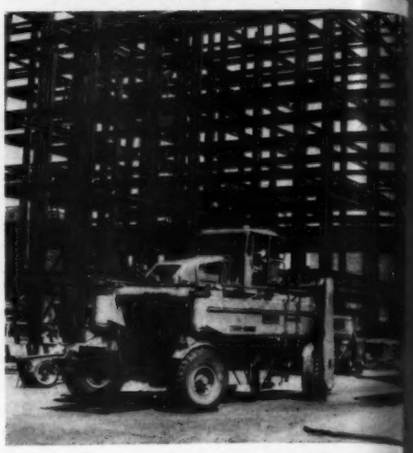
A multi-application rake for the Series H Caterpillar D8 tractor is announced by the Fleco Corp.

Designed to handle clearing tasks including rock and tree removal, riprap sorting, and other construction, the unit is adaptable to any Series H D8 equipped with a straight or angling dozer.

The heavy-duty, cast manganese carbon steel teeth can be equally spaced along the all-welded, bar-beam frame in any sequence from 5 to 10 teeth. Each tooth is backed by a steel gusset, and each is curved to give a rolling action to the load, reducing tractor effort, as well as to exert leverage to lift out boulders, etc.

The rake has a 56-inch height and can clear a 135-inch swath, according to the manufacturer.

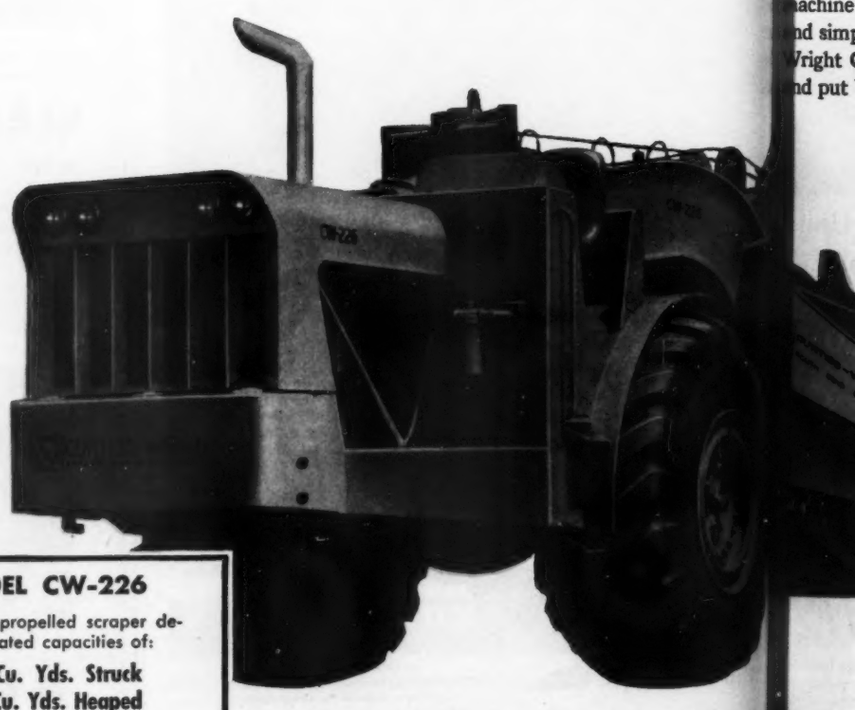
For further information write to the Fleco Corp., Dept. C&E, P. O. Box 2370, Jacksonville, Fla., or use the Request Card at page 18. Circle No. 107.



Fast handling of structural steel helped the Industrial Construction Co., of Minneapolis, to set 2,700 tons in less than three months. The job was the $9½ million, 10-story office building for the Ohio Oil Co., in Findlay, Ohio, and the work was accomplished with a Clark-Ross 25-ton-capacity straddle carrier. According to the contracting firm, this machine, in use for ten months on two different jobs, had already returned a considerable part of its original cost. For further information write to the **Clark Equipment Co.**, Dept. C&E, P. O. Box 31, Battle Creek, Mich., or use the Request Card at page 18. Circle No. 122.

YARDS AHEAD

CW-2
A CO



MODEL CW-226

2-axle, self-propelled scraper designed for rated capacities of:

26.0 Cu. Yds. Struck
36.0 Cu. Yds. Heaped

Travel Speeds	to 34.4 m.p.h.
Load Capacity	78,000 lbs.
Interchangeable with	21 Cu. Yds. Struck
Curtiss-Wright model	31 Cu. Yds. Heaped
CWD-221 Rear Dump	70,000 lb. Capacity

CURTISS-WRIG
SOUTH BE
SOUTH BE

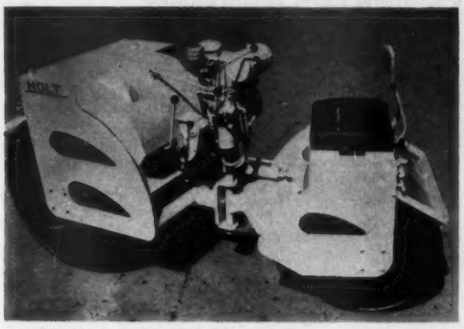
Easily portable roller designed for small jobs

The Model R-3A roller, designed specifically to meet weight requirements for state usage, is available from Holt Equipment, Inc. According to the manufacturer, the machine's exceptionally high compaction factor makes it suitable for patchwork on superhighway surfaces. Easy portability permits handling the comparatively small job quickly and economically and moving on to the next with a minimum of downtime.

A Wisconsin AGN engine is standard. The transmission is constant mesh running in oil, with forward and reverse clutch. The steering is hydraulic, and the machine features a 7-foot outside turning radius.

Front rolls measure 34 inches long×40 inches in diameter; rear rolls are 34 inches long×30 inches in diameter. Empty, the rolls weigh 4,210 pounds; full, 5,790 pounds.

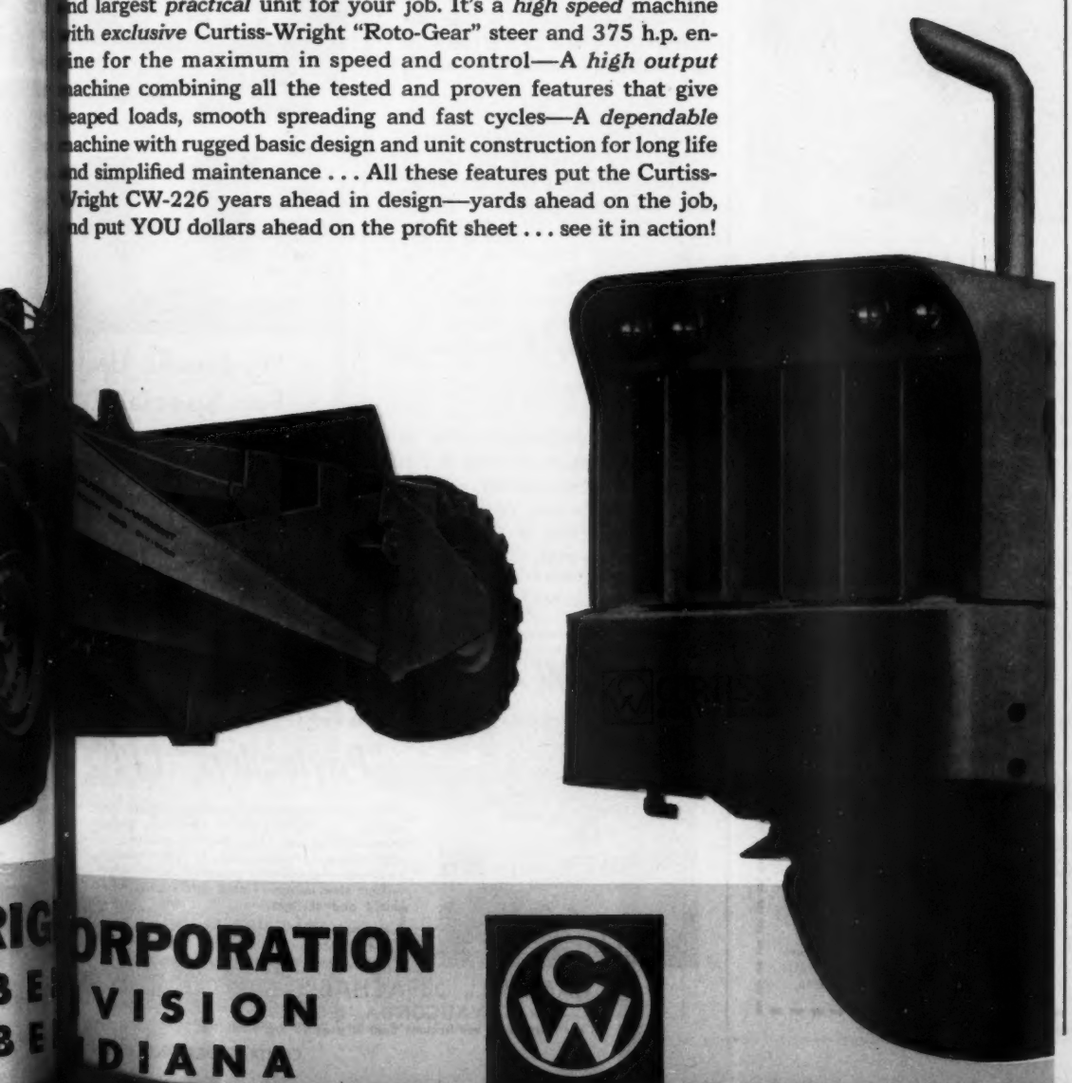
For further information write to Holt Equipment, Inc., Dept. C&E, Salem Road, Independence, Ore., or use the Request Card at page 18. Circle No. 90.



On the Holt Model R-3A roller, center-point steering assures that one roll follows the other exactly—a handy feature for close work on inside or outside turns.

. NEWEST AND LARGEST OF TE LINE OF EARTHMOVERS!

The 26 yd. CW-226 is the newest and largest addition to the Curtiss-Wright line of self-propelled scrapers . . . and the newest and largest *practical* unit for your job. It's a *high speed* machine with *exclusive* Curtiss-Wright "Roto-Gear" steer and 375 h.p. engine for the maximum in speed and control—A *high output* machine combining all the tested and proven features that give heaped loads, smooth spreading and fast cycles—A *dependable* machine with rugged basic design and unit construction for long life and simplified maintenance . . . All these features put the Curtiss-Wright CW-226 years ahead in design—yards ahead on the job, and put YOU dollars ahead of the profit sheet . . . see it in action!



ORPORATION
VISION
DIANA

New tooth device puts sharp corners on dozers

The new H&L corner adapter with Flexpin-type tooth is designed to put sharp corners on bulldozers of all makes and models.

The adapter and point are of forged high-alloy steel. According to

the manufacturer, the point pilots ahead of the blade, maintains accurate slope in cuts, and eliminates round corners. The Flexpin connection holds the point securely and can be changed by using only a hammer and punch. The corner adapters bolt in place of the original end bit, using the same bolt holes.

For further information write to the H&L Tooth Co., Dept. C&E, 1540 S. Greenwood Ave., Montebello, Calif., or use the Request Card at page 18. Circle No. 96.

Air-cleaning device cuts compressor downtime

A device for decontaminating compressor air is offered by the Logan Engineering Co.

Designed especially for pneumatic tools and spray equipment, the Aridifier reportedly removes up to 92 per cent of all moisture, oil, dirt, and fine scale in the air line. The unit is installed in the line between the compressor and the equipment using the air. Once installed, it requires no maintenance other than occasional cleaning of the trap section where impurities collect.

According to the manufacturer, the Aridifier is available for air lines of ¾ inch to 10 inches in diameter.

For further information write to the Aridifier Division, Logan Engineering Co., Dept. C&E, 4901 W. Lawrence Ave., Chicago 30, Ill., or use the Request Card at page 18. Circle No. 109.

Folding barricade kits allow parts replacement

A complete line of folding barricade kits that permit damaged parts to be replaced is available from Pacific Mercury.

The barricade has marine-plywood crossbars available in lengths from 2 to 8 feet. Top crossbars have diagonal black stripes against a yellow background (white base color may be substituted); bottom boards are plain.

For further information write to Pacific Mercury, Dept. C&E, 14052 Burbank Blvd., Van Nuys, Calif., or use the Request Card at page 18. Circle No. 71.

White L-20 ASPHALT PLANT

SAVE $2.00 A TON

Make your own hot mix asphalt with this new WHITE plant and save about $2.00 a ton. At its capacity of 240 tons a day, that's savings of $480.00 a day. Thirty-one of those days pay for the L-20!

Produces any type mix you can get from a $100,000 plant: AC, RC, MC, SC and emulsified for top course, base course, one course, or patch. Two men operate. Capacity is rated at a hot 315 degrees.

Available either portable or stationary, the L-20 will supply black-top for suburban streets, driveways, parking lots, school yards, or state highway maintenance. See nearest White distributor or mail coupon.

Manufacturers of quality construction equipment since 1925.

MAIL COUPON FOR FREE LITERATURE

White Manufacturing Company, Elkhart 9, Indiana

Please send literature on L-20 Asphalt Plant.

name

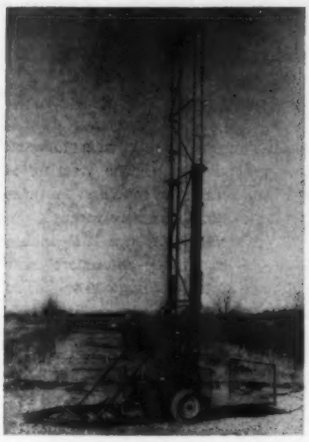
address

city state

Also send literature on:

☐ TROWELERS
☐ VIBRATORS
☐ TAR KETTLES
☐ Dealers: Check here for franchise availability in your area.

For more facts, use Request Card at page 18 and circle No. 379



Portable hoisting tower has 1,500-pound capacity

The Buck Equipment Corp. announces the Model GM-15-H self-erecting, medium-duty portable HoisTower.

With a platform of 2-wheelbarrow size, the unit has a load capacity of 1,500 pounds, which it will hoist or lower at a rate of 110 fpm. The machine is driven by a 9-hp air-cooled gasoline engine with roller-chain drive and optional electric starting. It erects to an unloading height of 45 feet. Additional tower sections in 10 and 5-foot lengths are available.

A one-man machine, the HoisTower GM-15-H is trailer-mounted and is easily towed right to the job site. One man can unhitch it from the truck, erect it, and have it operating in 23 minutes, according to the manufacturer.

As the tower is erected, the wheels retract and the trailer automatically settles down to become the base of the machine. As the tower is lowered, the base again becomes a trailer, ready to move to another location.

For further information write to the Buck Equipment Corp., Dept. C&E, 720-X Anderson Ferry Road, Cincinnati 38, Ohio, or use the Request Card at page 18. Circle No. 28.

To obtain further information on any of the products described in this section, circle the number given at the end of the item on the handy Request Card that is bound in at page 18 of this issue.

Automatic "SLOPE METER"

AIDS OPERATOR • SPEEDS WORK

"INSTRUMENTS THAT HELP YOU MAKE THE GRADE"

SLOPE METERS can be used to advantage on all sizes of tractors, bulldozers, scrapers and graders.

Do you want to . . .

- Make accurate slopes in less time
- Reduce machine time required to make perfect highway crowns
- Speed up night work
- Eliminate costly hand checking
- Construct and check variable slopes while your machines are in motion
- Avoid wavy slopes—Slope Meters give a continuous check between stakes
- Help your operators do more and better work

Then order a SLOPE-METER for each one of your machines today from your Equipment Distributor or

THE SLOPE METER CO.
EXCELSIOR, MINNESOTA

For more facts, circle No. 380

DUDGEON HYDRAULIC JACKS

SALES RENTALS

CAPACITY TO 600 TONS

FOR:
PILE TESTING
UNDERPINNING
BRIDGES
PIPE PUSHING

Write to Dept. M

DESIGNERS and MANUFACTURERS OF
Hydraulic Units For Special Applications

RICHARD DUDGEON INC.
789 BERGEN STREET BROOKLYN, N.
• ST 9-4040 •

For more facts, circle No. 381

IT's NEW - - - The Campbell Sliding Cab

for the models HU, HH, HO, H70, and H90 "Payloaders" ! ! !

This sturdy, modern design offers features long desired by "PAYLOADER" operators, among them—Sliding top, ball bearing mounted on steel channel—Rubber seals to insure weather tightness—Permanently mounted access ladder—Rear view mirror—Tinted safety glass windshield and skylight.

Investigate this completely new design in "Payloader" Cabs by calling your "Payloader" distributor, or contact

CAMPBELL DETACHABLE CAB CO.
WAUCONDA, ILLINOIS

For more facts, use Request Card at page 18 and circle No. 382

Equipped with a 40-foot boom and ½-yard concrete bucket, this Bucyrus-Erie 11-B transit crane is placing concrete for a 160-yard floor slab for a school addition at Dolores, Colo.

Mobile crane saves money for Western contractor

H. R. McBride of the H. R. McBride Construction Co., Farmington, N. Mex., chose a Bucyrus-Erie Model 11-B transit crane more than a year ago as the most suitable machine to handle its construction jobs in the "Four Corners" area, where the boundaries of Arizona, New Mexico, Utah, and Colorado intersect. The highly mobile unit reportedly has cut the firm's costs.

The accompanying photograph shows the 11-B placing concrete for a 160-yard floor slab for a school addition at Dolores, Colo. Equipped with a 40-foot boom and ½-yard concrete bucket, the 11-B completed a placing cycle in about 2 minutes. Placing required one shift. The boom was often powered down to enable direct placing to the slab forms, thus eliminating the use of wheelbarrows.

McBride's 11-B is readily convertible from a 10-ton crane to hoe, shovel, or dragline front ends.

For further information on this transit crane, write to the Bucyrus-Erie Co., Dept. C&E, South Milwaukee, Wis., or use the Request Card at page 18. Circle No. 131.

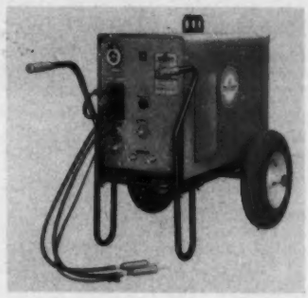
An 8-beam weighing system for batching plant

A beam scale with 8 separate beams to allow for cumulative weighing of 8 ingredients in a manually operated batching plant is offered by the Thurman Scale Co.

This scale is also available in a 9-beam model with automatic controls to allow operator selection of any one of three different preset mix combinations. The automatic scale incorporates an automatic trig reset mechanism and simplified electrical controls which will provide either single cutoff or fully interlocked weighing operation. All Thurman scale equipment is designed for installation of precision recording equipment as an optional extra.

For further information write to the Thurman Scale Co., Dept. C&E, P. O. Box 2179, Columbus 16, Ohio, or use the Request Card at page 18. Circle No. 110.

Offer gas conversion kit for welder, power plants



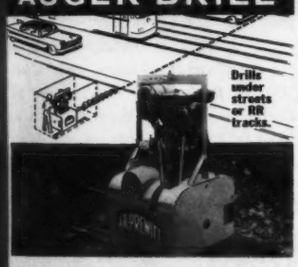
The Miller Electric Mfg. Co., Inc., announces a tungsten inert-gas conversion unit for its AEA series of gasoline-engine-driven welder/power plants.

According to the manufacturer, the device connects readily to the welder and delivers continuous high frequency—or high frequency for arc starting only.

The unit comes complete with gas timer, gas valve, 4-gallon water-coolant system, and RHS-2 hand switch for arc starting.

For further information write to the Miller Electric Mfg. Co., Inc., Dept. C&E, 718 S. Bounds St., Appleton, Wis., or use the Request Card that is bound in at page 18 of this issue. Circle No. 61.

LOW COST—LIGHT WEIGHT
ONE MAN OPERATED
PREWITT
DRY BORE HORIZONTAL
AUGER DRILL



DRILLS 2½" to 20" DIAMETER — 50' to 100' LONG—Cut labor, overhead and maintenance cost with the amazing new Prewitt Horizontal Auger Drill. Requires ground opening of only 4' x 10'—easily operated by one man. Light weight unit can be lowered in operating position by back hoe. Unit is self contained . . . requires no air compressor, generator, or water. Eight auger sizes are available from 2½" to 20" in diameter. Drills holes from 50' to 100' long . . . holds straight line. Easily reversed for retracting augers.

J. R. PREWITT AND SONS, INC.

DEALER INQUIRIES INVITED
Write, wire or phone for complete information

J. R. PREWITT & SONS
Pleasant Hill, Mo. Dept. EC Phone 40
For more facts, circle No. 383

YES! YOU CAN BUY DIRECT
SEND US YOUR ORDERS FOR
NEW ROTARY SWEEPER
BROOM CORES

WE MANUFACTURE ALL SIZES

SUGGESTION—To faraway users. Order cores only without fibres but ready to fill.

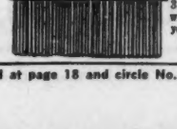
• Detroit Harvester
• Fordson
• Grace (3 types)
• Hough
• Huber
• Lull
$69.50 UP.
• Littleford
• Little Giant
• Melli-Blumberg (M-B)
• Rosco
• Spearswell
• Tampo
And many others

Also Cores Made to Your Specifications

KENNEDY'S
VAN BRUSH MFG. CO. INC.
SINCE 1928
327 S. West Blvd., Kansas City, Mo.

Road Builders — it's sensational!
BIG PECKERWOOD BIG
C-O-N-T-I-N-U-O-U-S
Drag Broom Levelers with Spring Steel Wires or Bass Fibres six inches wide and lengths to 12 feet, and also now three inches wide. No frame required.

Also furnished filled with Palmyra-Hickory or Bass Fibres or even Spring Steel Wires.
WE SHIP WORLDWIDE—IMMEDIATELY
In stock — ONLY $3.50 FOOT
Length 4', 6', 8', or 12'. Wt. approx. 5½ lb. (foot)



THE LITTLE PECKERWOOD
3" wide, 15" long, with two bolts, fits your present frame.
ONLY $2.50 EACH

For more facts, use Request Card at page 18 and circle No. 384

STABILIZE BASE THE ROME WAY

Rome Disk Plowing Harrow pulverizes, blends, compacts, bonds lifts

See the action of a Rome Disk Plowing Harrow as it cuts and levels a fill: note how it churns and pulverizes lumps, blending materials together, cutting deep into the subbase to bond the lift and base together. Look at how flat and smooth the fill is after the disk has done its work. The Rome way is the most efficient method ever devised for stabilizing and blending base on roads, dams, airports and fills.

Other uses include blending in-place materials like soil cement into a compact, homogeneous mixture—drying out a muddy cut or haulroad—cutting and chopping brush and small trees.

There's a size and type to match your specific needs. Call your Rome-Caterpillar Dealer today! Rome Plow Company, Cedartown, Ga.

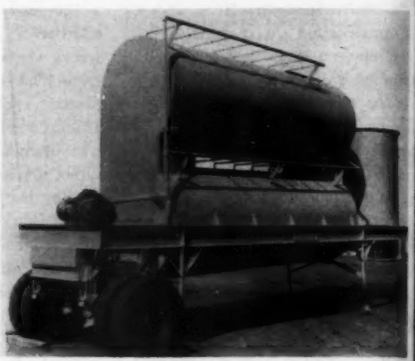
ROME.

YOUR ROME DEALER IS YOUR CATERPILLAR DEALER

For more facts, use Request Card at page 18 and circle No. 385

Single and dual-drum concrete pavers and a dual-capacity finishing machine were used by the Huron Construction Co., Ltd., of Chatham, Ont., Canada, to pave these aircraft taxi and parking areas at Malton Airport, near Toronto. One of the Blaw-Knox Model 34-E concrete pavers—the dual-drum unit—placed nearly 1,000 cubic yards of concrete per day for a 12-inch-thick, 20-foot-wide slab over a 12-inch-thick gravel base. Three-compartment trucks carried 1.3-cubic-yard batches to the pavers from a job-site batch plant. The finisher spread and finished concrete, moving over Blaw-Knox self-aligning airport paving forms. The finisher was modified by the contractor to include two 45-inch-diameter rubber-tire wheels; these lower for tow-type travel between paving strips and reduce time-consuming trailer loading and unloading of the unit for job-to-job hauling. For further information write to the **Blaw-Knox Co.**, Dept. C&E, 300 Sixth Ave., Pittsburgh, Pa., or use the Request Card at page 18. Circle No. 94.

Announce new wet washer featuring high mobility



Especially designed for use on Standard's Model S-E self-erecting asphalt plant, the cyclonic wet washer is furnished complete with spring-mounted wheel and axle assembly, jack legs, and air brakes.

Maximum dust-collection efficiency coupled with high portability are features of the new Standard mobile cyclonic wet washer for asphalt hot-mix plants. All known requirements covering air pollution can be met by this equipment, according to the company.

Especially designed for use on the firm's new high-capacity Model S-E self-erecting asphalt plant, this unit is ready to operate after connect of an inlet duct from the wet wash and placement of a light stack exte sion. The machine comes with spri mounted wheel and axle assem jack legs, and air brakes.

For further information write the Standard Steel Corp., Dept. C 5087 S. Boyle Ave., Los Angeles Calif., or use the Request Card page 18. Circle No. 132.

"The Cleveland J-30 doubled my daily production on 100,000 feet of trench"

HOWARD ZACHARIAS OF WELLINGTON, OHIO, a drainage contractor for the last 18 years, has averaged 2,500 feet per day with his new Cleveland J-30, has done 3,500 feet in 7½ hours, compared to an average 1,000 feet per day with other makes he formerly used. He did 100,000 feet of tiling with his J-30 between January 5 and May 1, in spite of adverse weather more than half the time.

He gives special credit to the J-30's beautiful balance and low ground bearing pressure on its long full crawlers, its easy-rolling 1,000-hour-lubricated track, the big capacity of its independent-drive conveyor, and the "push-button" hydraulic conveyor shift, which he says is particularly useful on tie-ins.

ITS FEATURES TELL WHY

- The world's finest trencher crawlers, 1,000-hour-lubricated, a tremendously long lived, trouble-free, easy-rolling track with big 16" x 3" hydraulic steering brakes.
- V conveyor provides constant elevating angle for faster, higher spoil discharge, with dual independent hydraulic drive and automatic hydraulic shifting.
- The finest, most practical tiling and gumbo equipment.
- Complete visibility and control of every operation at the operator's seat.

The CLEVELAND TRENCHER Co.

20100 ST. CLAIR AVE. • CLEVELAND 17, OHIO

Good Everywhere®

For more facts, use Request Card at page 18 and circle No. 386

COMPACT, POWER-PACKED ACKER TEREDO CORE DRILL

SPEEDS SOIL SAMPLING

IN A VARIETY OF WA

- Drive Sampling
- Undisturbed Sampl
- Penetration Testing
- Permeability Testing
- Wash Boring
- Driving Casing
- Rock Coring and many more!

Whatever the sampling technique, the Acker Teredo is up to it! Its modern design and host of useful features makes the Teredo the most useful you can buy!

It's ruggedly built, yet compact and light enough to be completely portable. Mount it on skid base, truck or trailer and power it with gasoline, diesel, electric or air motor. It's easy to use — inexpensive to operate!

Write today for Bulletin 30-R. C&E.

ACKER DRILL CO., Inc. P.O. Box 830 Scranton 2, Pa.

Over 40 years of experience manufacturing a complete line of diamond and shot core drills, accessories and

For more facts, use Request Card at page 18 and circle No. 387

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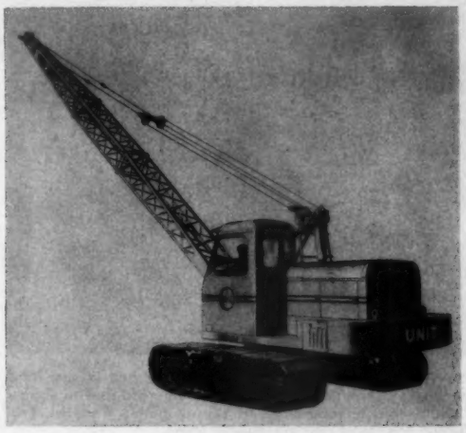


The Unit Model 1220 ¾-yard excavator has a 16-ton capacity when fully equipped for crane operation.

¾-yard excavator converts to 16-ton-capacity crane

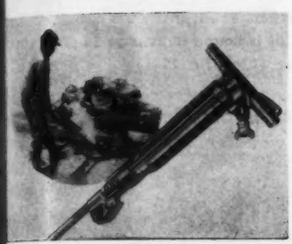
The Unit Crane & Shovel Corp. announces its heavy-duty Model 1220 ¾-yard excavator. Convertible to all attachments, the unit has a capacity of 16 tons when fully equipped for crane operation.

Standard features include one-piece cast gear case; involute splined shafts; automatic traction brakes; and twin hook rollers.

Choice of power installation consists of either a GM diesel engine with or without torque converter, or a Chrysler 8-cylinder gasoline engine with torque converter.

For further information write to the Unit Crane & Shovel Corp., Dept. C&E, 6411 W. Burnham St., Milwaukee 19, Wis., or use the Request Card at page 18. Circle No. 9.

Pneumatic paving breaker and demolition tool



A new pneumatic paving breaker and demolition tool is announced by Engineered Equipment, Inc.

Minimum recoil and low air consumption are major features of the Model CL-34. All shaped parts are forged for extra strength and long life. According to the manufacturer, maximum hitting power is developed by a dependable throttle and air-distribution system. A lever mechanism effects quick change of chisels and spades.

For further information write to Engineered Equipment, Inc., Dept. C&E, 1001 Linden Ave., Waterloo, Iowa, or use the Request Card at page 18. Circle No. 27.

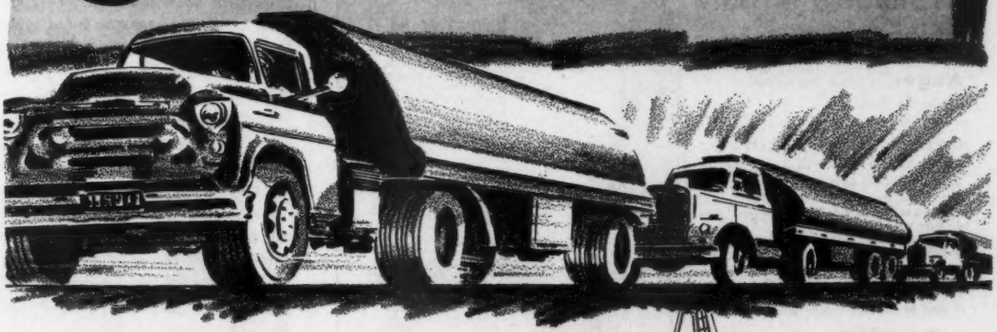
New void-forming medium for beams and slabs

A new forming medium for beam and slab construction, said to prevent slabs from settling, cracking, and breaking, is offered by the Lawrence Paper Co.

Called Jay Voids, these units are designed to take the place of sand, gravel, and other common fill materials. According to the manufacturer, during placement and setting, Jay Voids (made of asphalt-impregnated fiberboard) withstand the pressure of beams in the slab. After the concrete is dry, the corrugated voids deteriorate, leaving a desirable void under the slab. In this way, a positive and calculable space for expansion or contraction is created, and pressure is no longer brought against the slab to cause breaking and cracking. Jay Voids reportedly insure either 4 or 6 inches of such space, depending upon the demands of the particular job.

For further information write to the Construction Products Division, Lawrence Paper Co., Dept. C&E, Lawrence, Kans., or use the Request Card at page 18. Circle No. 25.

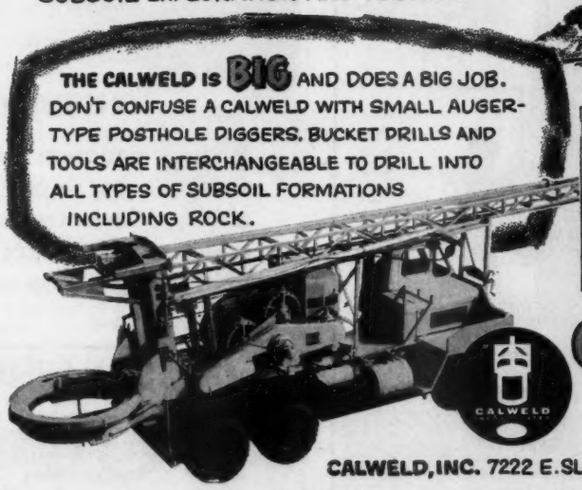
CALWELD DIGS A HOLE BIG ENOUGH TO BURY 3 TANK-TRAILER RIGS!



A CALWELD BORES A HOLE AS BIG AS 10' IN DIAMETER AND 200' DEEP! DIGS 45' DEEP IN ONE HOUR . . . . . BUCKET-DRILL HANDLES 1.4 YARDS PER PASS.

Hundreds of Contractors ARE USING CALWELD EARTH DRILLS FOR GENERAL EXCAVATING AND FOUNDATION PREPARATION — FOR BORING AND BELLING CAISSONS TO EXACT SIZE... FOR DIGGING MANHOLES, CESSPOOLS... FOR DRILLING WATER WELLS, SERVICE HOLES FOR OIL WELLS, SUBSOIL EXPLORATION AND TESTING.

THE CALWELD IS BIG AND DOES A BIG JOB. DON'T CONFUSE A CALWELD WITH SMALL AUGER-TYPE POSTHOLE DIGGERS. BUCKET DRILLS AND TOOLS ARE INTERCHANGEABLE TO DRILL INTO ALL TYPES OF SUBSOIL FORMATIONS INCLUDING ROCK.



WRITE FOR NEW "METHODS MANUAL FOR GENERAL CONTRACTORS & EXCAVATORS." A 16-PAGE BOOKLET FILLED WITH JOB FACTS AND METHODS USED IN ALL TYPES OF CONSTRUCTION JOBS.

CALWELD DRILLS

CALWELD, INC. 7222 E. SLAUSON AVE., LOS ANGELES 22, CALIFORNIA

For more facts, use Request Card at page 18 and circle No. 388

The Universal Engineering wobbler feeder and Impact Master crusher permitted the Quarve & Anderson firm to supply 130,000 tons of road stone in approximately 5 weeks. Production averaged 400 tph, rain or shine.

Primary crusher helps contractor beat deadline

A Universal Model 4650 portable Impact Master produced in excess of 400 tph of crushed primary stone for the Rochester, Minn., contracting firm of Quarve & Anderson.

According to the manufacturer, the nonclog features of the crusher and feeder kept production at full capacity even in rainy weather. On such days, "water-soaked, broken limestone mixed with shale and clay was dumped on the feeder bed ahead of the crusher. Thirty per cent of this sticky feed, under 2 inches, was removed by the wobbler feeder to keep it out of the Impact Master."

Elliptical-shaped wobbler bars, set alternately vertical and horizontal at 90 degrees, form the bed at the bottom of the hopper to receive the material. Turning of the bars imparts a rocking, tumbling motion to the material as the load is moved forward. Fines are worked loose and pass between openings of the bars to an underconveyor. These fines bypass the Impact Master and go directly to the secondary crushing equipment, saving conveyor belt wear by acting as a protecting cushion against the larger pieces of crushed material coming out of the Impact Master.

On this particular contract for 130,000 tons of road stone for Minnesota's Route 30, the Quarve & Anderson firm reportedly reduced its 60-day deadline by three weeks because of this equipment.

For further information write to The Universal Engineering Corp., Dept. C&E, 625 C Ave. N. W., Cedar Rapids, Iowa, or use the Request Card that is bound in at page 18 of this issue. Circle No. 127.

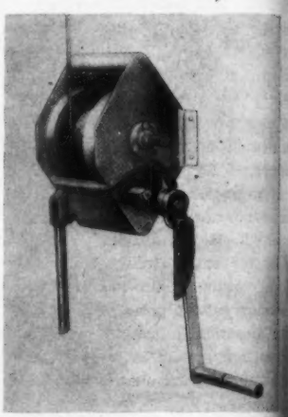
Offer all-purpose winch in ¾, 1-ton capacities

The Lug-All Co. announces a new line of portable spur-gear all-purpose winches in ¾ and 1-ton capacities.

These units offer such features as protective, torsion and pressureproof steel housings; separate hand brakes for safe, rapid lowering of full-capacity loads with accurate control; direct-drive for rapid let-out and take-up of cable; multispeed operation for greater efficiency; and a recoilless crank with brake that allows the crank to stay in any position.

Two types of mounting brackets are available—one for bolting to flat surfaces and the other for clamping to large pipes or columns. Crank pressures on ¾-ton models are from 45 to 60 pounds; on the 1-ton models, from 40 to 54 pounds, depending on the layers of cable.

For further information write to



The Lug-All Co., Dept. C&E, 35[illegible] Lancaster Ave., Haverford, Pa., or use the Request Card at page [illegible] Circle No. 36.

VERSATILE! 1 Mobile Drill now does all 4

- AUGER BORING
- PERCUSSION DRILLING
- SOIL SAMPLING
- CORE DRILLING

the new, powerful

B-52 *pacemaker*

HYDRAULIC ROTARY DRILL with the exclusive **Hollow Stem Auger** . . . *lets you sample while you bore!*

ONLY 4-IN-1 RIG ON THE MARKET . . .

Mobile Drill's new B-52 PACEMAKER brings you unequalled versatility to meet today's demand for greater drilling speed and flexibility. Here's a rugged, powerful, heavy-weight workhorse that mounts on 1 or 1½ ton vehicles and will drive 5" sectional augers to 150' . . . N rods to 600' . . . and A rods to 1000'.

BIG POWER . . . BIG PERFORMANCE!

PACEMAKER's twin hydraulic feed develops 10,000 lbs. hydraulic ram force! Rig has own independent power plant, variable speed control on rotary drive.

COMPACT . . . SELF CONTAINED

Custom mountings are designed to meet your needs, special body fabrications provide storage racks for augers and watertight compartments for tools and accessories . . . everything to make the PACEMAKER a mobile, fast moving, time saving unit.

WRITE FOR BULLETIN TODAY!

For free illustrated folder and complete specifications on the new P-52 PACEMAKER, write

time-saver no. 1
22' TOWER—Permits withdrawal of rods in 20' lengths. Mechanically operated, jackknifes to horizontal position for safe, legal highway travel.

time-saver no. 2
OFF-THE-HOLE HYDRAULIC BASE—Rail-mounted base slides out of way while adding or withdrawing drill sections, assures continuous perfect alignment. Hydraulically operated.

time-saver no. 3
CENTRALIZED 1-MAN CONTROL GROUPING—Located on operator's side of drill base, within easy reach. Fingertip controls plus advanced safety design increases operator's efficiency.

time-saver no. 4
NEW, *EXCLUSIVE* HOLLOW STEM AUGERS—Actually permit all types of sampling while you bore! Augers form their own casing, also allow coring through hollow stem after rock has been reached.

MOBILE DRILL

MOBILE DRILLING, INC.
Dept. 18, 960 N. Pennsylvania St.
Indianapolis 4, Indiana

*** From lightweight, jeep-mounted rigs to heavy-duty all purpose drills—MOBILE DRILL CAN MEET YOUR NEEDS! All drills mounted to your specifications.

For more facts, use Request Card at page 18 and circle No. 390

QUALITY CONCRETE AT LOWER COST

...RETARDING DENSIFIER

Reduce concrete placing costs and cut patching time by improved consolidation and workability. Plastiment slows set, controls uniformity and accelerates strength gain. To meet high job standards, it pays to use Plastiment.

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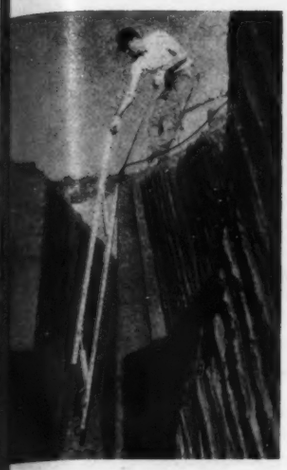
PASSAIC · NEW JERSEY
COMPOUNDS FOR MASONRY and CONCRETE CONSTRUCTION

DISTRICT OFFICES: ATLANTA • BATON ROUGE • BOSTON • CHICAGO • DALLAS • DETROIT • PHILADELPHIA • PITTSBURGH — DEALERS IN PRINCIPAL CITIES — AFFILIATES AROUND THE WORLD

RELIABILITY • EXPERIENCE • SERVICE

For more facts, use Request Card at page 18 and circle No. 391

Hydraulic device permits faster trench shoring



A workman inserts the Saf-T-Jax from the top of the trench. A portable pump is used to supply pressure to the two hydraulic jacks that connect to high-strength extruded aluminum shoring pads by hinges.

A new device that permits faster and safer trench shoring on pipeline, sewer, and other excavation jobs is offered by the Sigma Engineering Corp.

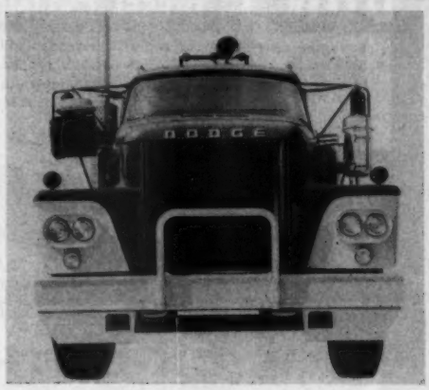
Called Saf-T-Jax, this device is a strong, integrally operated unit consisting of two opposing aluminum shoring members that are separated and supported by hydraulic jacks. Comparatively light in weight, it is designed so that one workman standing at the top of the trench can easily install it directly behind the digger. It also is retracted from the top of the trench, and it folds together into units 5¼ inches thick for handling and storage.

Two models, a unit with 2½-foot-long shoring pads and a 7-foot unit, are available. Both are equipped with 8-inch-wide extruded aluminum alloy shoring pads.

Standard units will brace trenches 20 to 28 inches wide. When extension rods are used, ditches as wide as 70 inches can be shored with no loss of safety features, the maker reports.

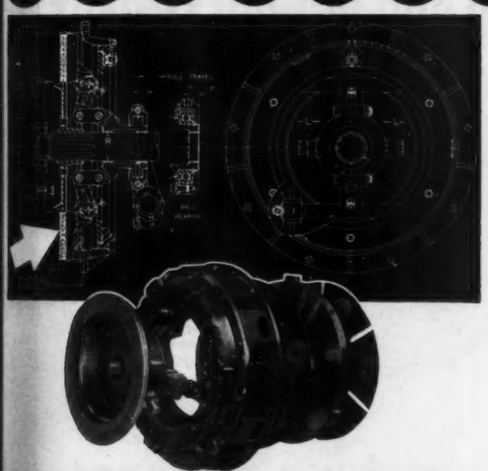
The device is suitable for any depth in most soils, and can be left in place for long periods without loss of pressure, safely locked against tampering.

For further information write to the Sigma Engineering Corp., Dept. C&E, 990 N. Tenth St., San Jose, Calif., or use the Request Card at page 18. Circle No. 13.



This new tandem tractor announced by Dodge is powered by a Cummins NH-220 engine. Designated Model NCT 1000, the 5-ton unit has a maximum gross combination weight rating of 76,800 pounds. For further information write to the **Dodge Division, Chrysler Corp.**, Dept. C&E, 7900 Jos. Campeau Ave., Detroit 31, Mich., or use the Request Card at page 18. Circle No. 42.

ROCKFORD



Small Spring Loaded

Heavy Duty Spring Loaded

Oil or Dry Multiple Disc

Heavy Duty Over Center

Power Take-Offs

Speed Reducers

Double Plate Clutch Provides More Torque - With Less Size

Used in a large crawler-type tractor, this Double-Plate ROCKFORD Morlife CLUTCH (Utilizing two MORLIFE® plates—equipped with button type facings) provides 100% more torque capacity than previous clutches of same diameter. 400% more service life and 50% more heat resistance are other features of this Heavy-Duty ROCKFORD Morlife CLUTCH. A brake plate is mounted on the heavy-duty, ball bearing type release sleeve.

SEND FOR THIS HANDY BULLETIN Gives dimensions, capacity tables and complete specifications. Suggests typical applications.

ROCKFORD Clutch Division BORG-WARNER

314 Catherine St., Rockford, Ill., U.S.A.

Export Sales Borg-Warner International — 36 So. Wabash, Chicago 3, Ill.

CLUTCHES

For more facts, use Request Card at page 18 and circle No. 392.

OWEN BUCKETS

new center line reeving doubles cable life

"Our new OWEN Bucket is great. That new center line reeving more than doubles our cable life," says Kenneth Muster, Supt. for R. F. Muntz, owner of the Hugo Sand and Gravel Co. of Kent, Ohio.

The tandem positioning of the lower closing sheaves permits the closing line lead to pass directly through the center of the head of the bucket. This exclusive OWEN feature eliminates excessive bending of the cable, resulting in increased cable life experienced by Hugo Sand and Gravel. It also permits the bucket to hang plumb from the crane boom.

"Our operation is tough on a clamshell, but all these improved OWEN features have greatly reduced our maintenance costs and cut down-time," claims Mr. Muster.

This OWEN Clamshell, with all moving parts lubricated . . . with all arm and sheave pins, plus the main shaft, having triple lip grease seals . . . has heavily cut the high maintenance expense of handling this sand suspended in water that comes directly from the wash plant.

Send us your requirements.
OWEN Engineers are at your service at all times.

The OWEN BUCKET Co.
BREAKWATER AVENUE, CLEVELAND 2, OHIO
BRANCHES: New York • Philadelphia • Chicago
Berkeley, Calif. • Fort Lauderdale, Fla.

For more facts, use Request Card at page 18 and circle No. 393

DON'T THROW AWAY CRACKED DIESEL CYLINDER HEADS

You can save 50% of replacement cost with Factory Rebuilt Swick-Guth Heads. Swick-Guth restores cracked or worn heads, blocks, transmission cases to a Guaranteed good as new condition by the Controlled Heat Process . . . successfully used for more than a Quarter Century.

Send today for price list and a free booklet on the famous Swick-Guth Process, and the name of the dealer nearest you.

SWICK-GUTH CO.
McPHERSON, KANSAS • FORMERLY GUTH CO.

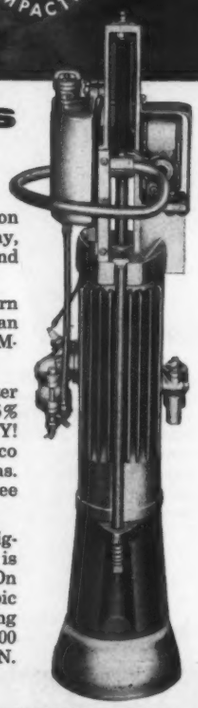
"SPECIALISTS IN WELDING DIESEL CASTINGS"

For more facts, use Request Card at page 18 and circle No. 394

ON ROAD WORK—

Tamping fill around 4 ft. concrete pipe culvert on New York State Thruway Extension near West Seneca, N.Y. The Barco Rammers are owned by S. J. Groves & Sons Co., Syracuse, N.Y. (Photo: CONSTRUCTIONEER)

Barco Rammers are Essential!



CHECK THE RECORDS for *soil compaction* on every top ranking highway, toll road, thruway, or freeway built in recent years and you will find Barco Rammers!

The key to better construction—No modern trend has had a more phenomenal growth than the specification of HIGH DEGREE SOIL COMPACTION for all kinds of projects.

Easily meet rigid specifications—In test after test, Barco Rammers have delivered 95% to 97.5% compaction (modified Proctor Method)—EASILY! EFFICIENTLY! ECONOMICALLY! The Barco Rammer is especially useful in restricted areas. ONLY Barco can produce specified high degree compaction on lifts up to 20 inches.

Get jobs finished on time—One of the biggest advantages offered by Barco Rammers is ability to handle work in minimum time. On area tamping, one man can average 20 to 30 cubic yards of fill per hour. On trench backfill, using lifts up to 24", the rate for 18" trench is 360 to 600 feet per hour. ASK FOR A DEMONSTRATION.

FOUNDED 1908 BARCO PRODUCTS BACKED BY EXPERIENCE

BARCO MANUFACTURING CO.
518H Hough Street • Barrington, Illinois

BARCO RAMMER *for High Degree Soil Compaction*
BARCO VIBRA-TAMP *for Granular Fill and Bituminous Surfacing*

For more facts, use Request Card at page 18 and circle No. 395

Product Parade

Offer 5½-ton roller with choice of engines

The Essick 5½-ton roller is available in two models: the 560-C with a Continental 4-cylinder water-cooled engine developing 32 horsepower or the 560 with a Wisconsin 30-hp air-cooled engine.

A new 3½ to 5½-ton tandem roller featuring either an air-cooled or water-cooled engine is announced by the Essick Mfg. Co.

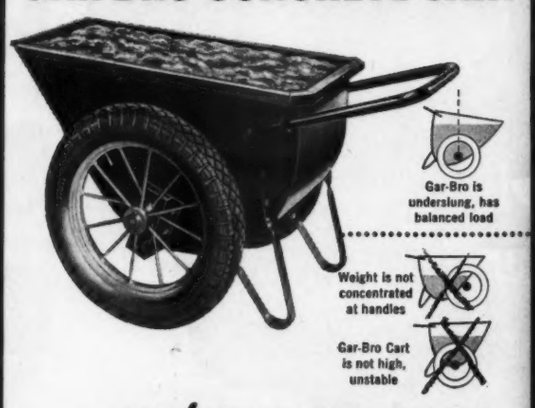
The Model 560 incorporates the firm's heavy-duty constant-mesh transmission, which transmits power smoothly and positively from engine to compression roll through steel gears rotating on antifriction bearings. The transmission and externally adjustable clutches are easily accessible for maintenance and inspection, and offer 2 speeds in either direction.

Maximum working weight has been increased to 11,300 pounds on the air-cooled model and to 11,500 pounds on the water-cooled model. Dual controls and two locations for the adjustable-height operator's swivel seat make it possible to operate the roller from either side, providing full visibility at all times. Water regulation for spraybars can be made by the operator of the machine without leaving his seat.

For further information write the Essick Mfg. Co., Dept. C&E, 18[illegible] Santa Fe Ave., Los Angeles 21, Calif. or use the Request Card at page [illegible] Circle No. 63.

designed WITH CONCRETE IN MIND

GAR-BRO CONCRETE CART



. . . makes a man want to deliver a full load!

When workmen race to work early just to get a Gar-Bro Cart there must be a difference. And Gar-Bro's balanced design makes that difference.

Gar-Bro Carts are designed specifically for heavy concrete . . . are balanced when fully loaded . . . are definitely lighter at the handles. They are easier to push, easier to maneuver, easier to control and pour concrete.

Here is a cart that is 25% lighter in weight than other carts; that will handle 30% more load with half the effort and yet it costs no more.

See your Gar-Bro dealer or write for catalog!

GAR-BRO MANUFACTURING CO., Los Angeles, Calif. • Peoria, Ill.
General Offices: 2415 East Washington Blvd., Los Angeles 21, Calif.

GAR-BRO CONCRETE HANDLING EQUIPMENT

THE WORLD'S MOST COMPLETE LINE

For more facts, use Request Card at page 18 and circle No. 389

The Henry L-100 Series loader, designed for mounting on utility tractors of several models, has a breakaway capacity of 2,500 pounds.

New loader announced for utility tractors

The L-100 Series front-end loader is announced by the Henry Mfg. Co. Designed for mounting on utility tractors, it has a breakaway capacity of 2,500 pounds. The Model L-100S has one bucket cylinder; the Model L-100D has two. Double-acting lift and bucket cylinders are standard on both models.

Adapter brackets are provided to mount the L-100 Series on the following tractors: International Harvester 240 and 340; Allis-Chalmers D-14; John Deere 430W and 430U; Ford 600-800; Ferguson 35; Massey-Ferguson 202; Oliver 550; and Case 310.

For further information write to the Henry Mfg. Co., Inc., Dept. C&E, P. O. Box 521, Topeka, Kans., or use the Request Card at page 18. Circle No. 10.

WACHS *Portable*
POWER AND MANUAL PIPE CUTTERS
2" TO 72" CAPACITY

WACHS GUILLOTINE SAW
2" to 8" Capacity
Electric or Air Drive

"BIG" GUILLOTINE SAW
10" to 16" Capacity

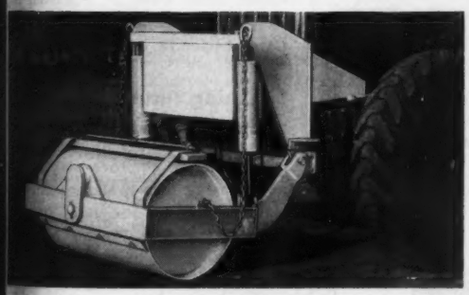
WACHS NATIONAL SAW
"The milling machine on wheels"
Cuts 10" to 72" Pipe

WACHS STRICKLER RATCHET CUTTER
"Lathe Type Cuts"
5 sizes—2½" to 24" Capacity

Write for descriptive bulletins

THE E. H. WACHS COMPANY
1525 NORTH DAYTON STREET · CHICAGO 22, ILLINOIS

For more facts, circle No. 396



MARTIN
GRADERROLLER
for all types of surface rolling

SAVE TIME—quickly attached to any Cat Motor Grader. Easily, instantly lowered and raised as needed. No need for an extra machine and man . . . GraderrolleR is always on the job.

SAVE MONEY—costs much less than conventional roller. No maintenance problems. Get more use out of grader, too!

TILTABLE, TOO! Tiltable design and hydraulic accumulator allow roller to stay level while maintaining constant controlled pressure, regardless of position of grader. Automatic sprinkling system keeps asphalt from sticking to roller.

progress through Research • Design • Engineering
MARTIN COMPANY
620 ANDREWS AVE. • KEWANEE, ILLINOIS

For more facts, circle No. 397

Cutting edges available for dozers and scrapers

ForgeTemp (TM) double-bevel dozer and scraper cutting edges are announced by Bucyrus Blades, Inc.

According to the manufacturer, this design assures equally firm, stable mounting of the cutting edge in both original and reversed position, and eliminates abrasion wear to the blade base or moldboard. In addition, the firm has increased the bevel angle of the ForgeTemp blades to provide more material for wear and extend service life.

For further information write to Bucyrus Blades, Inc., Dept. C&E, Bucyrus, Ohio, or use the Request Card that is bound in at page 18. Circle No. 26.

Drive tool for fastening has power-assist design

Hilti Rapid Fastening Systems, Inc., announces a new type of drive tool for fastening into concrete, steel, and all types of masonry.

Designated Model DX-100, the tool uses a power assist behind a drive piston instead of behind the fastener, thus permitting the transmission of maximum force where needed.

The tool is designed to use a large assortment of available fasteners for most installations where threaded studs, drive pins, and drive ring fasteners are used in lengths up to 4 inches.

For further information write to Hilti Rapid Fastening Systems, Inc., Dept. C&E, 73 Southfield Ave., Stamford, Conn., or use the Request Card that is bound in at page 18 of this issue. Circle No. 138.

Slurry-Seal Spreader

Gives **best,** uniform **results** with this **NEW Method** of surface sealing . . . thin, even application of asphalt-sand-water slurry. **Fills** and **seals** cracks. **Levels** minor depressions. **Skid-proofs** surfaces.

NEW TARCO Spreader made of bolted metal construction, forms light, yet rugged box. Two **slurry-leveling blades:** one semi-rigid; one flexible rubber adjusts to pavement contour by 5 screw-type rods. Completely equipped: heavy **drag chains,** 2 retractable **traveling wheels;** water **sprinkler;** telescoping **tow bar;** operator's **cat walk.**

For more spreader details—or more information on NEW Slurry-Seal Method see your TARCO dealer or write to us.

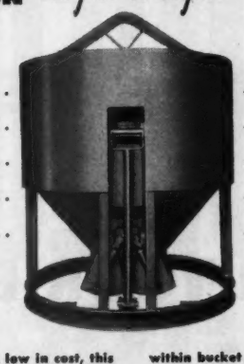
TARRANT MFG. COMPANY
31 Jumel Place, Saratoga Springs, N. Y.

For more facts, circle No. 398

NEW! JOHNSON® *light-weight* CONCRETE BUCKETS

SIZES:	NET WEIGHT*
½ cu. yd.	355 lbs.
¾ cu. yd.	455 lbs.
1 cu. yd.	700 lbs.
1½ cu. yd.	840 lbs.
2 cu. yd.	1075 lbs.

*approx.

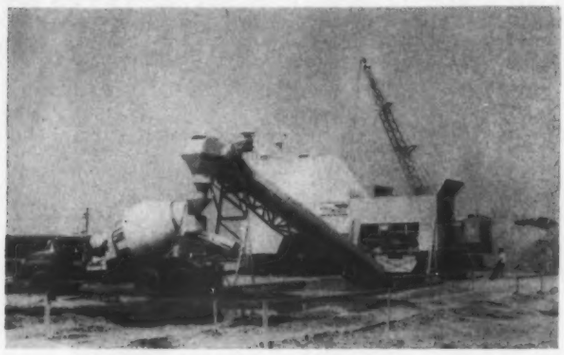


Light in weight, low in cost, this all-new series of concrete buckets from Johnson gives high ratio of capacity-to-weight. Makes each pour more profitable for you! Features: all-welded steel hopper, frame. All working parts above discharge point and well within bucket outline—protected during work, storage, shipment. 50° slope of cone bottom gives complete discharge of medium-slump concrete. Short-stroke, easy leverage handle. Double-clam gates. Stainless steel shafts in nylon bearings. Write today!

— — — Mail to C. S. JOHNSON CO., Champaign, Ill.— — —
Send more information on ..... cu. yd. light-weight concrete bucket
NAME .....
COMPANY .....
STREET ..... JBIB C&E
CITY, STATE .....

JOHNSON
CHAMPAIGN, ILLINOIS • STOCKTON, CALIF.

For more facts, use coupon or circle No. 399



A construction area too small to warrant a stationary batching plant was developed into a profitable new ready-mix market by use of a batching plant on wheels. Transported from an Air Force Base runway paving job at Oxnard, Calif., to Long Beach, Calif., a Noble-Mobile batching plant supplies concrete for construction of the new boat marina and for commercial and residential building in the Long Beach area. Located 7 miles from the nearest stationary plant, and operating on short hauls, the portable plant is currently batching up to 100 cubic yards per hour of transit-mix concrete for the 15,000-cubic-yard marina job. The Long Beach operation is one of 12 maintained by Mountain Ready-Mix, whose main office is in Fullerton, Calif. For further information about this batching plant, write to the **Noble Co.**, Dept. C&E, 1860 Seventh St., Oakland, Calif., or use the Request Card at page 18. Circle No. 51.

The Pushin'-Cushin' features a self-contained hydraulic system with no pumps or hoses to wear, and no controls requiring manual operation.

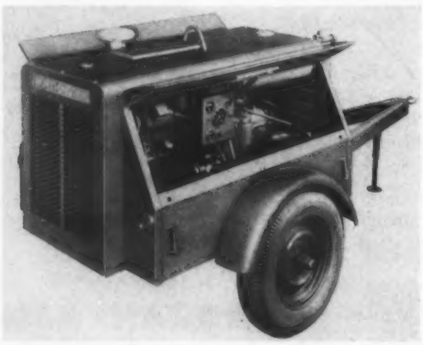
Hydraulic shock reducer for scraper pushers

A new attachment designed to enable pushers to connect with scrapers "on the run" is available from Pushin'-Cushin', Inc.

Known as the Pushin'-Cushin', its self-contained hydraulic system functions automatically, with no pumps or hoses to wear, and no hydraulic controls requiring manual operation.

In addition to increased yardage per cycle, the manufacturer points out the cost saving in reduced pusher and scraper maintenance, due to the reduction of shock loads. The unit is available for all pushers.

For further information write to Pushin'-Cushin', Inc., Dept. C&E, Box 107, Perry, Kans., or use the Request Card that is bound in at page 18. Circle No. 98.



New compressor features economy of operation

Economy of operation and maintenance are said to be the outstanding characteristics of Worthington's 85-foot Super Blue Brute single-stage, portable air compressor. Both its Continental 168-hp gasoline engine and compressor reach peak efficiency at 1,800 rpm; in addition, the engine has a reserve power capacity of over 50 per cent.

Discharge pressure settings range from 75 to 125 psi. Designed for heavy-duty operation, it need not level but will perform satisfacto on moderate slopes.

Wide-track wheels, correspondi to those of most trucks, and a l center of gravity permit safe t ing at high speeds, even over rou rutted terrain.

This Super-Blue Brute is 54 inc high, 61 inches wide, and 121 i inches long, including its heavy-d towbar. A skid-mounted model is a available.

For further information write the Worthington Corp., Holyoke D vision, Dept. C&E, 37 Appleton S Holyoke, Mass., or use the Reque Card at page 18. Circle No. 146.

Finishing time, fatigue reduced by new machine

Designed to improve slab qual at the same time it slashes finish time and costs, the new Jitterb Crawler Concrete Tractor is offer by the Goldblatt Tool Co.

According to the firm, the new is used on any job where a Jitterb hand tamper is normally used, basic function being to depress larg aggregate below the surface of t slab and to bring a thin layer "paste" or "fat" and fine and semi aggregate to the surface for qu and easy finishing.

The tool uses an arrangement of parallel steel rods, each 35 inch long, all attached to two chain These chains move on four sprocke to drop each rod straight down in the mix as the operator pushes th crawler over the surface of the sla The rods hold the larger aggrega just below the surface of the sla Because the tool does not depend

TUNEUP
FOR YOUR B&D TOOLS

For genuine Black & Decker repairs check Yellow Pages under "Tools-Electric" for address of nearby Black & Decker

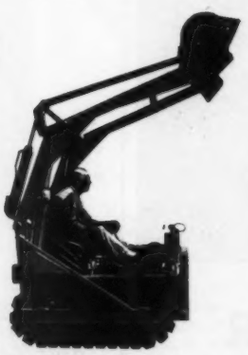
FACTORY SERVICE BRANCH

Free tool inspection when requested • Genuine B&D parts used • Factory-trained technicians handle all work • Standard B&D Guarantee at completion of recommended repairs • Fast service at reasonable cost.

Or write for address of nearest of 48 branches to:
THE BLACK & DECKER MFG. CO., *Dept. 5360b, Towson 4, Md.*

Black & Decker
QUALITY ELECTRIC TOOLS
For more facts, circle No. 401

THE NEW AGRICAT LOADER

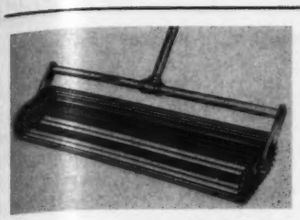


This Hi-Lift Loader, with hydraulically operated bucket tilt mechanism, reduces job costs . . . quickly pays for itself in time, money and manpower saved on earth moving operations. Hydraulic bucket tilt permits fully controllable spillage . . . can be used to break and loosen hard-packed soil. Designed for peak efficiency in "tight spot" work where large equipment cannot maneuver, this new model F Loader gives consistent low-cost, low-maintenance performance. . . . Easily converted in less than 10 minutes from Loader to Angle Dozer using latest hydraulically-controlled tilt blade attachment. Demonstrations have proven highly successful—Won't you call for yours today?

Valuable Distributorship Open

AGRICAT EQUIPMENT CO.
5353 Lancaster Ave., Philadelphia 31, Pa. • TRinity 7-5200

For more facts, circle No. 402

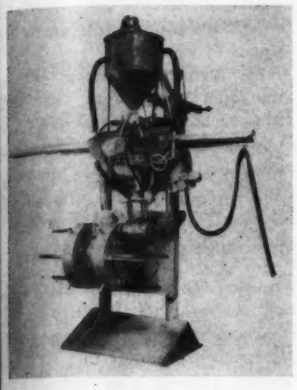


a hand-applied "beating" motion, considerable labor is eliminated, and wading in the mix is ended.

The Jitterbug Crawler is 11 inches high, 37 inches wide over all (tread width 35 inches), and weighs about 25 pounds. It is furnished with a 10-foot handle that takes extensions.

For further information write to the Goldblatt Tool Co., Dept. C&E, 1910 Walnut St., Kansas City 8, Mo., or use the Request Card at page 18. Circle No. 30.

Machine for roller and idler rebuilding



The flux recirculating Model DEMS roller and idler rebuilding machine is available from L & B Welding Equipment, Inc.

The unit features a 150-pound flux container situated on the fixture carriage. A flux pickup nozzle is attached to each of the two wire-feed welding contactors with flexible hose, and picks up all the unfused flux and dust produced by the welding operation. Two outlets are located at the bottom of the flux container, to return the flux to the hopper. A vacuum system returns the flux to the container.

Other features of the machine are a single-console, dual-power, 100 per cent duty cycle, constant-voltage welding source; a cantilever arm with two 4-spindle units for mounting 8 rollers or 2 idlers; two wire feeders; 360-degree rotation of the cantilever arm in order to weld all flanges without additional handling after the initial loading; and module-designed welding controls.

For further information write to L & B Welding Equipment, Inc., Dept. C&E, 2424 Sixth St., Berkeley, Calif., or use the Request Card at page 18. Circle No. 145.

Pipe, valve, cable locator is transistorized

A new transistorized pipe, valve, and cable locator is offered by the Gardiner Electronics Co. It features a single-turn transmitting and receiving coil cast right into the Fiberglas case. The transmitter and receiver are powered by 4 flashlight batteries each and give an average life of 1,480 hours. The unit uses a total of 10 transistors—3 in the transmitter and 7 in the receiver.

The transmitter has a switch to allow for good and poor conductive ground, and the receiver has a 3-position sensitivity switch plus a variable-gain control.

For further information write to the Gardiner Electronics Co., Dept. C&E, 2545 E. Indian School Road, Phoenix, Ariz., or use the Request Card at page 18. Circle No. 38.

Rain hood adds comfort to safety hats and caps

A flexible rain hood made of virgin vinyl for low temperature flexibility is offered by The Fibre-Metal Products Co.

Designated Model R-1, it is said to be quick and easy to install in the firm's complete line of Fiberglas and aluminum hats and caps, and as easy to remove. There are only 4 points of attachment to the headband, and 3 plastic fasteners at its front.

For further information write to The Fibre-Metal Products Co., Dept. C&E, Fifth and Tilghman Sts., Chester, Pa., or use the Request Card at page 18. Circle No. 8.

This Model R-1 rain hood is made by The Fibre-Metal Products Co.

HEAVY DUTY BEAUTY

Model CP-369 by Concut

Another Concut "First" . . . Center Blade Mounting for perfect balance and increased efficiency. A 36 HP Unit that saws fast, straight and deep. Full Hydraulic Controls with Forward and Reverse Propelling and Power Raise Out makes the CP-369 the easiest handling heavy duty unit available. "Up-Cut" action and Blade Saver Switch increase unit efficiency and Blade Life.

BALANCED DESIGN
FULL HYDRAULIC CONTROLS
FORWARD & REVERSE DRIVE, POSITIVE BRAKING

Write or contact your Concut representative for details.

CONCUT

distributed in the Mid-west by . . .
CONCUT MID-AMERICA inc., 5783 N. Lincoln Ave., Chicago 45, Ill.

1845 Belcroft Ave., El Monte, Calif.

For more facts, use Request Card at page 18 and circle No. 403

DEPENDABLE

AMERICAN WEDGEFOOT COMPACTION ROLLERS

Model AD120-5548 Drum diameter 60" Drum length 60"

Before you buy any Sheepsfoot, Wedgefoot, or Pneumatic Tire Roller ask about the important features found in the "fully engineered and built for rugged duty", AMERICAN Rollers.

The Finest On Earth

Send for Specifications and the Name of Your Nearest Dealer

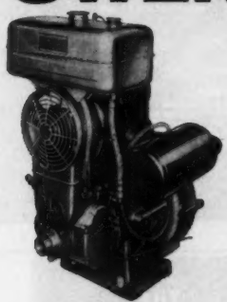
AMERICAN STEEL WORKS

1211 West 27th Street Kansas City 11, Missouri

For more facts, use Request Card at page 18 and circle No. 404

NEED DEPENDABLE AIR-COOLED DIESEL POWER?

Jlo Series 365
7 Horsepower



Jlo Series 660
12 Horsepower

JLO* ENGINES

(Pronounced "ee-lo")

Give You

SIMPLICITY: 2-cycle design, practical in this horsepower range, eliminates valving for maintenance-free operation.

ECONOMY: low initial cost is combined with maintenance economy and reduced overhaul cost, when required.

DEPENDABILITY: Jlo Series engines have proved their fast-starting, rugged design in applications the world over.

7 TO 12 HORSEPOWER: high power rating in a small package to match your requirements for a light-weight power source.

AVAILABLE IN THE U. S. EXCLUSIVELY THROUGH

HERCULES

GET FREE BOOKLET!

Hercules Motors Corp., Dept. 14G, Canton 2, Ohio

Please send me bulletin on Jlo Series engines and the name of my Hercules distributor.

Name_____

Address_____ City_____

*Reg. TM of Jlo-Werke, G.m.b.H., Pinneberg, Germany

For more facts, use coupon or Request Card at page 18 and circle No. 405

Enter vibrator field with two one-man units

The Champion Mfg. Co. announces two one-man vibrators, a flexible shaft model and a motor-in-head model.

The flexible shaft vibrator, with a 1½-hp electric motor, features a twin variable eccentric that allows for variation of amplitude and frequency.

Other features include an adjustable canvas carrying strap for the motor, removable steel or rubber tips for the head, and specially designed spear tips for getting into tight spots in prestressed concrete.

The head of the 60-cycle motor-in-head unit weighs only 14 pounds. Built to operate on 110-volt ac or dc, this vibrator is protected against circuit overload and excessive heat.

For further information write to the Champion Mfg. Co., Dept. C&E, 3700 Forest Park Ave., St. Louis 8, Mo., or use the Request Card at page 18. Circle No. 108.

Offer new steam cleaner featuring high output

The Vapor Heating Corp.'s Upgrader Model 80 steam cleaner reportedly puts out 80 gph of hot cleaning solution at 120 psi.

Features of this unit include a water reserve tank with float level control; fuel metering control; steam-pressure gage; plastic-coated wiring; fused safety pump switch and drain cocks to avoid freeze-ups. The Upgrader is furnished complete with housing which permits ready access to all working parts. A easy-to-use gun has replaceable orifices.

The unit is available with wheels and towbar, soap tank, and either gasoline or electric motor power. It weighs 256 pounds with wheels and stands 37 inches high.

For further information write the Vapor Heating Corp., Dept. C&E, 80 E. Jackson Blvd., Chicago 4, Ill., or use the Request Card at page 18. Circle No. 117.

Demolition grab offered for razing brick walls

A demolition grab for razing brick wall construction is offered by the Williams Bucket Division of the Wellman Engineering Co.

The grab is approximately the same size as a ¾-yard clamshell bucket, and it takes large chunks of brick wall for loading directly into trucks. Adjustable jaw plates of steel accommodate walls of varying thicknesses.

According to the manufacturer, breakage is reduced where bricks are to be reclaimed, and excess rubble is also eliminated.

For further information write the Williams Bucket Division, Wellman Engineering Co., Dept. C&E, 7000 Central Ave., Cleveland, Ohio, or use the Request Card at page 18. Circle No. 74.

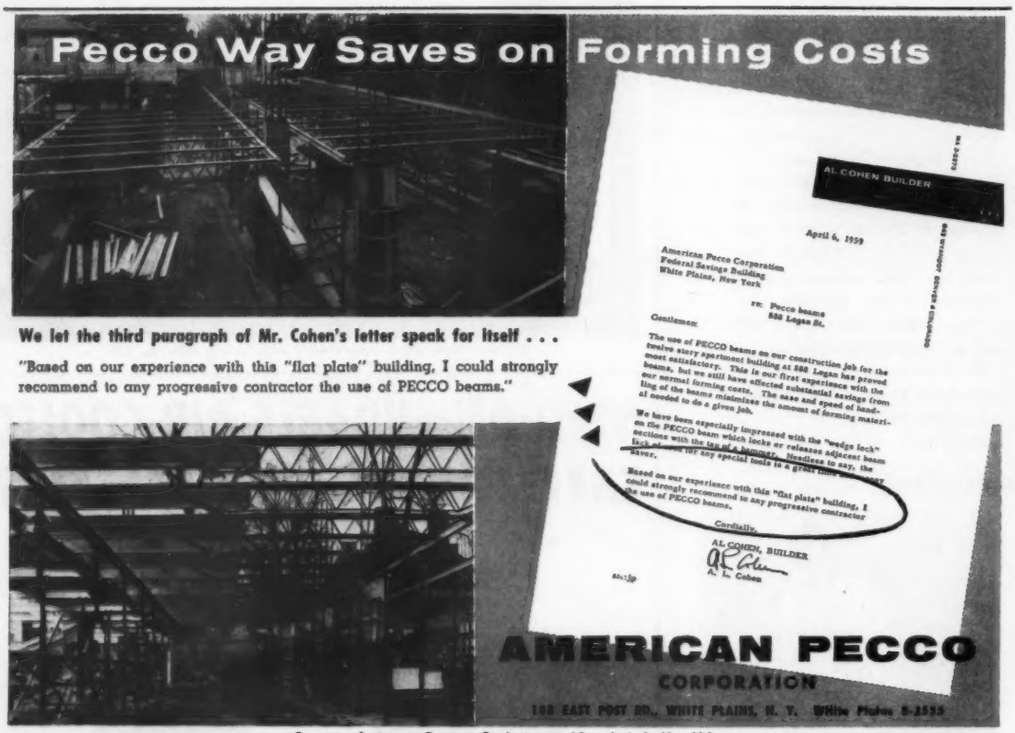
For further information on any product described in this section, circle the indicated number on the Request Card at page 18.

Tractor-drawn scraper has increased capacity

The No. 463 Series C crawler-tractor-drawn scraper is announced by the Caterpillar Tractor Co.

The new unit can be used with either D8 or D9 tractors, without modification. Its struck capacity is 22 cubic yards; heaped, 29 cubic yards.

Increased flotation of the new


Pecco Way Saves on Forming Costs
AL COHEN BUILDER
April 4, 1939
American Pecco Corporation
Federal Savings Building
White Plains, New York
re: Pecco beams
886 Logan St.
Gentlemen:
The use of PECCO beams on our construction job for the twelve story apartment building at 886 Logan has proved most satisfactory. This is our first experience with the beams, but we still have effected substantial savings from our normal forming costs. The ease and speed of handling of the beams minimizes the amount of forming material needed to do a given job.
We have been especially impressed with the "wedge lock" on the PECCO beam which locks or releases adjacent beam sections with the use of a hammer. Needless to say, the lack of any special tools is a great time saver.
Based on our experience with this "flat plate" building, I could strongly recommend to any progressive contractor the use of PECCO beams.
Cordially,
AL COHEN, BUILDER
A. L. Cohen
AMERICAN PECCO
CORPORATION
100 EAST POST RD., WHITE PLAINS, N. Y. White Plains 8-2555

We let the third paragraph of Mr. Cohen's letter speak for itself . . .

"Based on our experience with this "flat plate" building, I could strongly recommend to any progressive contractor the use of PECCO beams."

For more facts, use Request Card at page 18 and circle No. 406

THE MORSE-STARRETT WIRE ROPE CUTTER

Cutting capacities up to 1 inch, 1-1/16 inch, and 1-1/2 inch.

FAST
Especially designed cutting blade and dies of the finest steel assure fast cutting action.

EASY
Anyone can operate it. The hammer principle eliminates any special skill requirements.

SAFE
The enclosed cutting blade locked in the body of the cutter assures perfect safety.

PORTABLE
Models for tool kit or stationary operation. Made in three sizes.

SEE YOUR DEALER OR WRITE TO
MORSE-STARRETT PRODUCTS COMPANY
1204 - 49th AVENUE OAKLAND 1, CALIFORNIA

For more facts, circle No. 407

SAFE • SPEEDY • DEPENDABLE

Derricks For every contractor's need—Stiff-Leg, Guy Line, Setter, A-Frame, Pole and Tripod, Roofers' Circle Swing Derricks... hand and/or power operated. Proved performers on every type of job. Safe and dependable.

"PROVED IN SERVICE"
Sasgen

Hoists Made to fit your requirements—large or small. Complete units, like the Liftamatic, which reaches up to 90 ft., carries 1200 lb. load with electric or gasoline power—or Contractors' Drum Hoist Units, single or double drum, with capacities from 500 to 5500 lb. single line pull. Optional power.

Winches From U. L. approved safety scaffold winches to heavy-duty hand-powered winches that will take from 400 to 40,000 lb. loads, Sasgen has a complete line to handle your job quickly and safely. You can't buy a better winch!

Handled by Leading Equipment Distributors Everywhere
WRITE FOR CATALOG AND PRICES
Sasgen DERRICK COMPANY
3127 W. GRAND AVE. • CHICAGO 22, ILLINOIS

For more facts, circle No. 408

Designed for use with D8's or D9's, the No. 463 Series C scraper has a struck capacity of 22 cubic yards and a heaped capacity of 29 cubic yards.

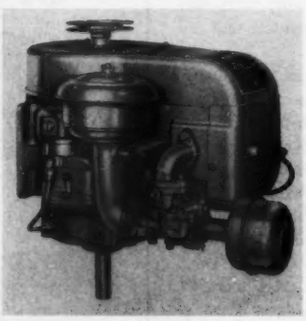
model has been accomplished by the ne of wide-base, tubeless tires: 6.5×25 on front wheels, 29.5×29 on ear.

Numerous structural improvements atch the scraper's durability to its increased capacity, according to the manufacturer.

For further information write to the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 37.

Vertical shaft engine develops 9.2 horsepower

The Wisconsin Motor Corp. announces a new heavy-duty, air-cooled vertical shaft engine designated Model HAENL.



According to the company, this engine will operate within a power and speed range from 4.7 horsepower at 1,600 rpm to a top rating of 9.2 horsepower at 3,600 rpm. It has a piston displacement of 23 cubic inches and is designed for low-silhouette, compact installations, permitting conformity to streamlined equipment design.

For further information write to the Wisconsin Motor Corp., Dept. C&E, 1910 S. 53rd St., Milwaukee, Wis., or use the Request Card at page 18. Circle No. 115.

Welding, cutting outfit for light, medium duty

A gas welding and cutting outfit, called the Aircomite, is announced by the Air Reduction Sales Co. With this new outfit, operators reportedly can

weld steel up to ⅜ inch thick, cut up to 1-inch-thick steel plate, braze, and hardface.

The outfit includes one oxygen and one acetylene regulator, one welding

(*Continued on next page*)

WINSLOW—PORTABLE TRUCK SCALE

THE CONTRACTORS' SPECIAL SCALE

For use at temporary and permanent locations—at stock piles and by bituminous material contractors at the job site. Capacity: 15-18-20-30, 40 and 50 tons.

Write us for name of your nearest distributor.

WINSLOW SCALE COMPANY P.O. Box 1198 Terre Haute, Indiana

For more facts, use Request Card at page 18 and circle No. 410

NEW ALIGNING TOOL ADJUSTS AND BRACES

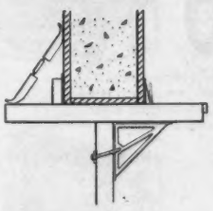
Beam and Wall Forms

Ellis **WALL BRACE**

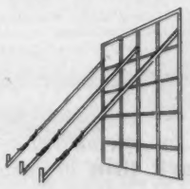
Turnbuckle Device Makes Adjustment of Angle Simple!

The curved ends and multiple hole pattern of the Ellis Wall Brace permit nailing it at any angle between beamside and tee-shore head; the turnbuckle provides for quick adjustment to the exact angle desired. When used as an adjustable connection between two 2 x 4's bracing a wall form, its straight "angle iron" portion gives plenty of surface for nailing into the 2 x 4's on two sides; then easy turnbuckle adjustment! For more information on this and other Ellis Methods of concrete construction, write to Ellis today.

Being Used as a **BEAM BRACE:**



Being Used as a **WALL BRACE:**



ELLIS MFG. CO. INCORPORATED

211 N.W. 4th ST. • OKLAHOMA CITY, OKLAHOMA

For more facts, use Request Card at page 18 and circle No. 411

It's the **TAMPO TEAM** *for* **COMPACTION**

- PNEUMATIC TIRED ROLLERS
- VIBRATORY ROLLERS
- 50 TON COMPACTORS
- SHEEPSFOOT ROLLERS

A complete line of efficient TAMPO compaction equipment is available through your local dealer to meet the flexibility and variety required for every job condition or specification.

Write for latest bulletins and name of your nearest dealer.

TAMPO MANUFACTURING COMPANY
BOX 4248, STATION A
SAN ANTONIO 7, TEXAS

For more facts, circle No. 409

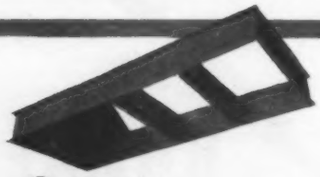
Construction camera

Concrete placement runs as high as 20,000 cubic yards per 6-day week at Ice Harbor Dam, Pasco, Wash., where two big Washington revolving cranes are handling the bulk of the concrete work. The 150-ton cranes work with 155-foot booms and 85-foot-high gantries. Under construction by a joint venture, the dam includes elaborate fish facilities so that migrating fish can bypass the structure. Above is the south-shore fish ladder. Eight pumps, rated at 300 cfs each, will be used to attract fish away from the powerhouse tailrace and into the ladder system of the structure.

THE NEW

CLARK TRANS-PLANT

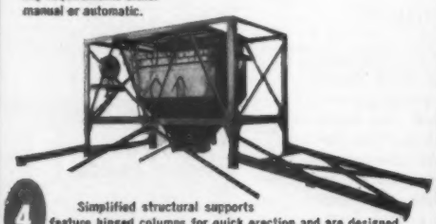
GIVES YOU A PORTABLE UNITIZED BATCH PLANT



1 Hopper section with or without extension, compartmentized to suit your requirements for capacities up to 200 tons.

2 Structurally re-enforced all welded construction for maximum strength.

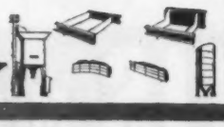
3 Weigh batchers up to 5 cubic yard capacity to meet any requirements either manual or automatic.



4 Simplified structural supports feature hinged columns for quick erection and are designed so drive through can be in either direction.

See your local **Clark dealer** *for information on the complete* **Clark line** *of construction equipment*

CLARK INDUSTRIES



construction equipment division

375 EAST FIFTH AVENUE • COLUMBUS 1, OHIO

A DIVISION OF CLARK GRAVE VAULT CO.

For more facts, circle No. 412

(Continued from preceding page)

torch with three tips, one cutting attachment and tip, one pressure mixer with gas sealing rings, a pair of welding goggles, 12½ feet of 3/16-inch neoprene-lined twin hose with connections, one spark-lighter, and one all-purpose wrench.

The oxygen regulator is equipped with a 60-psi working pressure gage and a 4,000-psi high-pressure gage with silver soldered bourdon tube connections. On the acetylene regulator, a 30-psi and 400-psi gage are used.

For further information write to the Air Reduction Sales Co., a division of Air Reduction Co., Inc., Dept. C&E, 150 E. 42nd St., New York 17, N. Y., or use the Request Card at page 18. Circle No. 95.

Self-cleaning bucket announced for loaders

The new Shunk-Baker self-cleaning front-end loader bucket is announced by the Shunk Mfg. Co.

This attachment is furnished in 1, 1½, 2, and 2¼-yard capacities and is interchangeable with rear-hinge buckets on wheel or crawler front-end loaders. It is designed to increase yardage in heavy wet soils by eliminating the dumping of half-loads or cleaning the bucket by hand.

The bucket's special alloy steel, chain-driven scraper blade is ⅝ inch thick and operates on steel bushings. The scraper is spring-loaded and reportedly cannot be damaged by rocks or other hard objects.

For further information write to the Shunk Mfg. Co., Dept. C&E, Bucyrus, Ohio, or use the Request Card at page 18. Circle No. 54.

A heavy steel blade on the Shunk-Baker self-cleaning bucket automatically scrapes the bucket clean from top to bottom each time it is dumped.

GRACE SWEEPERS

• Towed type with traction or engine drive.
• Front tractor mounted model.
Sweep right or left. Brushes or fiber for any sweeper.

GRACE CHIP SPREADERS . . . for fast uniform coverage on seal coat jobs.

W. E. GRACE MANUFACTURING CO.
6003 S. Lamar • Dallas 15, Texas • HA 1-7147

For more facts, circle No. 413

The 42 LB. GRIPHOIST TIRFOR

LIFTS • PULLS LOWERS 3300 LBS. Single Line

6 TONS OR MORE with pulley blocks

• Unlimited cable travel . . . Portable . . . Hand Operated

Standard equipment with refineries, engineering contractors, mines, pile drivers, railways, electricians, telephone and utility cos., steel erectors, plumbers, sawmills, all rigging.

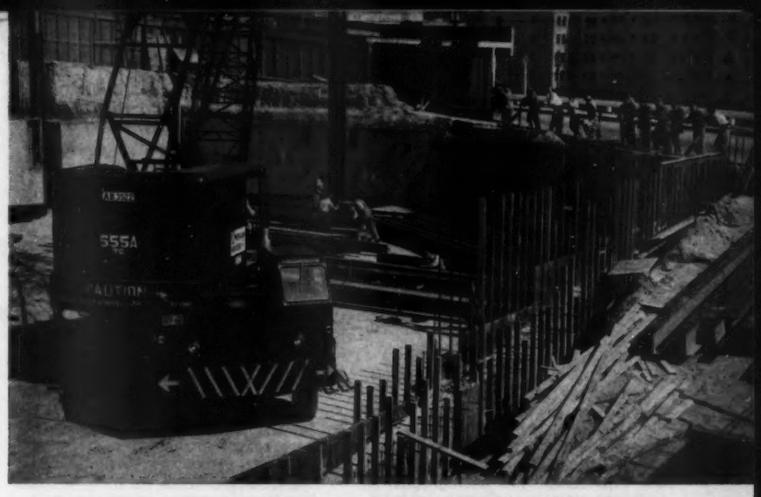
One Year Written Guarantee

East of Mississippi
Princeton Griphoist, Inc.
32 George Street
Boston 19, Mass.

West of Mississippi
Griphoist, Inc.
424 Bryant Street
San Francisco 7, Calif.

For more facts, circle No. 414

In only 34 hours, crews of U. S. Steel's American Bridge Division demolished an old 200-foot bridge over a rail line at Bayway, N. J., for the Staten Island Rapid Transit, and replaced it with a new 2-span bridge. Here, the 160-foot plate-girder span is ready to be moved into place.



A start is made on steelwork for a new building in Los Angeles as a 35-foot-long 7-ton base column is placed by a 35-ton P&H crane with 130-foot boom. The American Bridge Division of U. S. Steel Corp. is handling the steel erection for the 16-story Signal Oil & Gas Co. building on Wilshire Blvd.

Air-cooled compressors deliver 311 to 635 cfm

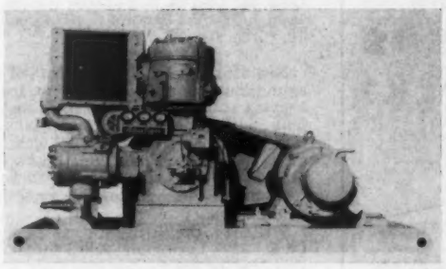
Two new semiportable air-cooled compressors delivering from 311 to 635 cubic feet of air per minute at 100 pounds per square inch are announced by Atlas Copco.

Designated AT series, the machines are designed for use under extreme temperature ranges and in areas where water is dirty, corrosive, or exceptionally expensive because of short supplies.

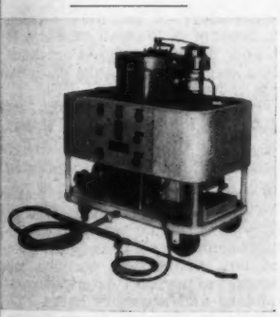
Built for three-shift operation, the compressors are quickly installed and may be operated as semiportable units on specially designed skid frames.

The AT-1, which delivers 311 cfm at 600 rpm and 374 cfm at 730 rpm, stands 54 inches high, 51 inches wide, and approximately 30 inches deep. The AT-3 is 66 inches high, 64 inches wide, and about 40 inches deep. Its output is 533 cfm at 490 rpm, and 635 cfm at a 585-rpm speed.

For further information write to Atlas Copco Eastern, Dept. C&E, 610 Industrial Ave., Paramus, N. J., or use the Request Card at page 18. Circle No. 102.



One of Atlas Copco's new AT series air-cooled compressors.



Lower fuel consumption with new steam cleaner

A heavy-duty steam cleaner designed for continuous, uninterrupted production is announced by the Turbo Machine Co.

The new unit, firing kerosene, No. 1 or No. 2 fuel oil, reportedly burns approximately 2½ gallons of fuel per hour of cleaning time.

An automatic, electronic low-water cutoff prevents the machine from starting without water, and stops operation if the water supply is interrupted, thus eliminating the possibility of burn-out.

The Turbo unit weighs 600 pounds and moves easily on rubber-tire wheels, swiveled for turning.

For further information write to the Turbo Machine Co., Dept. C&E, 340 W. Main St., Lansdale, Pa., or use the Request Card at page 18. Circle No. 67.

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Product LITERATURE

To obtain free copies of any of the literature described in the following section, circle the designated number on the Request Card at page 18.

Dredges—a booklet emphasizing the economy, efficiency, versatility, and portability of Ellicott Dragon hydraulic dredges. Generously illustrated with on-the-job photographs, as well as a cutaway drawing showing the major components of a standard model. Bulletin No. 925.

Write to the Ellicott Machine Corp., Dept. C&E, 1611 Bush St., Baltimore 30, Md., or use the Request Card at page 18. Circle No. 45.

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Stabilized-base mixers—a bulletin describing two models of Cedarapids stabilized-base mixers: one with a capacity of 300 tph, the other with a 300 to 600-tph capacity. Text well illustrated with drawings and photographs. Bulletin SBM-1.

Write to the Iowa Mfg. Co., Dept. C&E, 916 16th St. N. E., Cedar Rapids, Iowa, or use the Request Card at page 18. Circle No. 52.

Bin vibrators—a catalog on "pulsating-magnet" electric vibrators for keeping stubborn bulk materials and bulk parts free-flowing from bins, hoppers, and chutes. Gives complete descriptions, data, and specifications for 14 standard units. Illustrations include photos of typical installations.

Write to the Syntron Co., Dept. C&E, 227 Lexington Ave., Homer City, Pa., or use the Request Card at page 18. Circle No. 11.

Grouters, concrete-placing equipment—a brochure describing Prehy grouters and concrete-placing equipment. Data on accessories including grout pumps, jam plugs, and driving points. Illustrated with photographs.

Write to the Prehy Co., Dept. C&E, 420 Lexington Ave., New York 17, N. Y., or use the Request Card at page 18. Circle No. 87.

Mulching machine — literature describing the construction and operating characteristics of the Pioneer roadside mulching machine. Text illustrated with photographs.

Write to the Pioneer Threshing Co., Inc., Dept. C&E, Shortsville, N. Y., or use the Request Card at page 18. Circle No. 2.

Asphalt liner—folder describing various applications for Careymat asphalt liners, recommended for lining spillway walls, sewage channels, water-storage and sewage-treatment basins, irrigation canals, etc. Waterproofing and weather-resistant qualities of this tough, pliable easy-to-install asphalt "board" are explained.

Write to The Philip Carey Mfg. Co., Dept. C&E, 8 Wayne Ave., Lockland, Cincinnati 15, Ohio, or use the Request Card at page 18. Circle No. 128.

Capping test cylinders—a bulletin stressing the benefits and detailing the method of capping concrete test cylinders. Describes and illustrates a complete cylinder capping set.

Write to Forney's Inc., Tester Division, Dept. C&E, P. O. Box 310, New Castle, Pa., or use the Request Card at page 18. Circle No. 7.

Conveyors—a catalog describing Barber-Greene's newly expanded Redi-Fab belt-conveyor series. Features a cutaway view of a complete Redi-Fab belt conveyor, showing how the various components are combined to provide the correct conveyor for every application. On-the-job photographs illustrate text.

Write to the Barber-Greene Co., Dept. C&E, 400 N. Highland Ave., Aurora, Ill., or use the Request Card at page 18. Circle No. 133.

Gasoline-powered saw—a pamphlet describing the Wright Super Rebel gasoline-powered saw featuring no-chain design. Gives complete specifications. Action photos illustrate text.

Write to the Wright Power Saw & Tool Corp., subsidiary of Thomas Industries, Inc., Dept. C&E, 410 S. Third St., Louisville 2, Ky., or use the Request Card at page 18. Circle No. 134.

Horizontal shoring—literature describing Pecco-Beam horizontal shoring designed to assemble quickly to spans from 8 feet 6 inches to 9 feet 7 inches due to telescopic principle and simple "wedge lock" locking device. According to the manufacturer, these units are easily handled since they weigh 8 pounds per foot.

Write to the American Pecco Corp., Dept. C&E, 188 E. Post Road, Federal Savings Bldg., White Plains, N. Y., or use the Request Card at page 18. Circle No. 101.

Nonshrink grout—a bulletin describing successful grouting techniques with Embeco nonshrink grout. Outlines and illustrates common methods of grouting different types of equipment, the mixing and placing of grout, and cold and hot-weather grouting. Includes data on recommended mixes and estimating tables. Bulletin E1d.

Write to The Master Builders Co., Dept. C&E, 7016 Euclid Ave., Cleveland 3, Ohio, or use the Request Card at page 18. Circle No. 135.

Guard railing—an engineer's design kit to aid in the specification and installation of Metal Plate guard railings, support posts, and special parts. Detail dimensional drawings illustrate text.

Write to the Metal Plate Guard Rail Division, Marwais Steel Co., Dept. C&E, 6466 Gayhart St., Los Angeles 22, Calif., or use the Request Card at page 18. Circle No. 62.

Spreaders—a brochure detailing the benefits of Wausau Models A, B, C, and 6-RT-1 material spreaders. Gives specifications and is illustrated with photographs.

Write to Wausau Iron Works, Dept. C&E, 738 S. Tenth Ave., Wausau, Wis., or use the Request Card at page 18. Circle No. 83.

Forming equipment—a booklet providing data on Simplex forms for heavy-construction applications. Includes complete panel and filler specifications, application drawings and photos, and full descriptions of standard and accessory items.

Write to Simplex Forms System, Inc., Dept. C&E, 5605 Industrial Ave., Rockford (Loves Park), Ill., or use the Request Card at page 18. Circle No. 136.

Metal buildings—a well illustrated booklet describing the construction characteristics of Parkersburg pre-engineered metal buildings for a wide variety of applications. Contains photographs and specifications for all units described.

Write to The Parkersburg Rig & Reel Co., Dept. C&E, Parkersburg, West Va., or use the Request Card at page 18. Circle No. 137.

Wire-rope recommendations—a bulletin entitled "Matching the Wire Rope to the Job." Provides specific recommendations for the best wire-rope construction to use on all types of equipment using wire rope. In many cases, gives two or three choices depending on special circumstances under which the equipment is working. Red-Strand Service Bulletin No. 107.

Write to the H. K. Porter Co., Inc., Leschen Wire Rope Div., Dept. C&E, 2727 Hamilton Ave., St. Louis 12, Mo., or use the Request Card at page 18. Circle No. 21.

(Continued on next page)

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Tractor—literature describing the Napco 4-wheel-drive, 4-wheel-steer tractor. Includes action photographs of the machine at work, as well as data and close-ups of optional attachments. Form No. CT-12.

Write to the Construction Equipment Division, Napco Industries, Inc., Dept. C&E, Seventh St., North Lyndale, Minneapolis 11, Minn., or use the Request Card at page 18. Circle No. 140.

Concrete, masonry construction aids—a manual providing detailed information on the complete Tretol line of more than 33 products for concrete and masonry construction and building maintenance. Gives data on concrete surface treatments, concrete integral mixtures, and waterproofing and dampproofing compounds. Also offers information on the formula of each product, where it may be used, its benefits, how it works, what it does, and method of application.

Write to Tretol, Inc., Dept. C&E, 6531 W. 63rd St., Chicago 38, Ill., or use the Request Card at page 18. Circle No. 75.

Lubricant selector chart — a Molykote lubricant selector chart to help in choosing the proper lubricant for a wide variety of extreme pressure lubrication jobs. Evaluates every type in the Molykote line based on temperature, environment, method of application, incorporation into common materials, and recommendations for various parts, operations, and conditions. A brief technical description of each Molykote type also included.

Write to The Alpha-Molykote Corp., Dept. C&E, 65 Harvard Ave., Stamford, Conn., or use the Request Card at page 18. Circle No. 50.

Scaffolding — a folder describing Spring-Lock light and heavy-duty steel scaffolding and accessories. Drawings illustrate many components. Specifications included.

Write to the Spring-Lock Scaffolding Co., Dept. C&E, 2728 N. Second St., Philadelphia 33, Pa., or use the Request Card at page 18. Circle No. 88.

Mobile office—literature describing Alonie mobile offices. Specifications include dimensional drawings of 45, 50, 57, and 60-foot models.

Write to Alonie Mobile Products, Inc., Dept. C&E, P. O. Box 349, Marshfield, Wis., or use the Request Card at page 18. Circle No. 88.

Small roller—literature on Western Econoroll's 1-ton roller. Stresses such features as matched machined guide rolls, low center of gravity design, automotive geared steering, complete water system, offset guide, and compression rolls. Complete specifications included.

Write to the Western Equipment Division, Douglas Motors Corp., Dept. C&E, 1234 N. 62nd St., Milwaukee, Wis., or use the Request Card at page 18. Circle No. 80.

Steel buildings—a pamphlet stressing the construction characteristics of Truscon standard steel buildings. Contains close-up photographs of various details, as well as erection views and dimensional drawings. Brief specifications included.

Write to the Truscon Steel Division, Republic Steel, Dept. C&E, Youngstown 1, Ohio, or use the Request Card at page 18. Circle No. 141.

Concrete cart—data on Aeroil's Power Buggy Model BG-10. Lists such features as 10-cubic-foot capacity, 7-hp engine, and 4-wheel stability. Includes specifications and information on optional equipment. Bulletin BG-1.

Write to the Aeroil Products Co., Inc., Dept. C&E, 75 Wesley St., South Hackensack, N. J., or use the Request Card at page 18. Circle No. 81.

Excavator-cranes — a brochure containing photographs, drawings, and descriptive data on the complete Insley line of excavator-cranes and concrete-handling equipment. Models covered include Types K, L, M, WT, WB, and 45. Gives capacity ranges, with various attachments. Form No. 190-B.

Write to the Insley Mfg. Corp., Dept. C&E, P. O. Box 167, Indianapolis 6, Ind., or use the Request Card at page 18. Circle No. 20.

Welded-steel water pipe — an illustrated folder on Armco welded-steel water pipe. Gives data on wide range of diameters and wall thicknesses; durability; rigid testing; lengths up to 50 feet; high flow capacity; high strength; and field fabrication. P. O. 8859.

Write to Armco Drainage & Metal Products, Inc., Dept. C&E, 703 Curtis St., Middletown, Ohio, or use the Request Card at page 18. Circle No. 32.

Crushing - screening - loading plant—a folder on the Pioneer Model 32-S intermediate-size portable duplex crushing - screening - loading plant. Contains a large 2-page cutaway view of the plant, showing flow of material from feeder to delivery conveyor, as well as a series of line drawings depicting possible arrangements of screens, spouts, and dampers. Gives complete detailed specifica-

(*Continued on next page*)

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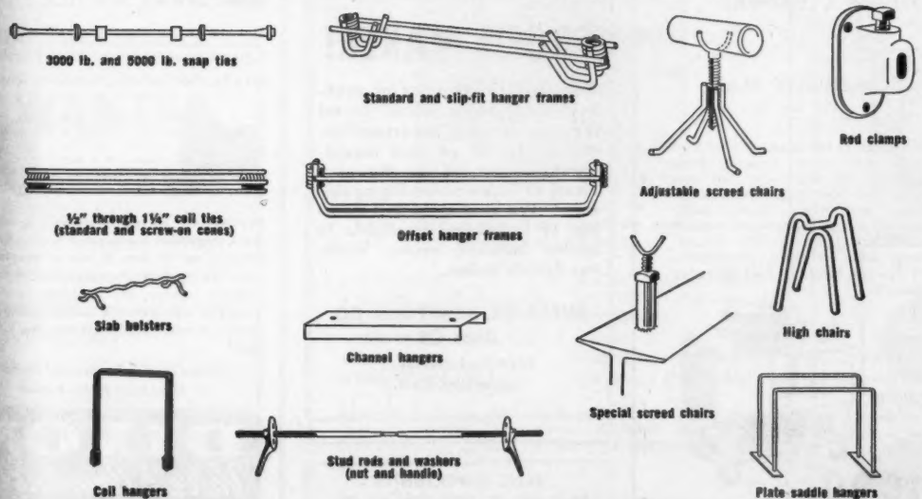

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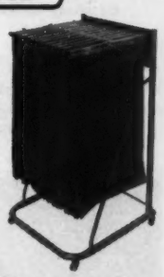

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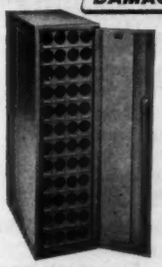

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tions including dimensions, weights, and horsepower requirements.

Write to the Pioneer Engineering, division of Poor & Co., Dept. C&E, 3200 Como Ave., Minneapolis, Minn., or use the Request Card at page 18. Circle No. 65.

Truck-mounted spreader—literature on the one-man-operated, truck - mounted Hydro - Spreader Model B for salt spreading, seal coating, and ice control. Specifications included. Text illustrated with photographs. Bulletin H-4.

Write to the Central Engineering Co., Inc., Dept. C&E, 4429 W. State St., Milwaukee 8, Wis., or use the Request Card at page 18. Circle No. 142.

Concrete-cutting blades—literature on the construction and operating benefits of Rock-Saw corrugated blades for masonry and concrete cutting. Contains photographs, drawings, and a handy materials application chart.

Write to the Rock-Saw Corp., Dept. C&E, 135 Metropolitan Ave., Brooklyn 11, N. Y., or use the Request Card at page 18. Circle No. 143.

Dragline modification—a field report showing how to extend dragline range and handle a variety of difficult jobs with Sauerman Crescent DragScrapers. Illustrated with line drawings and photographs. Field Report No. 231.

Write to Sauerman Bros., Inc., Dept. C-34, Dept. C&E, 620 S. 28th Ave., Bellwood, Ill., or use the Request Card at page 18. Circle No. 16.

Wire rope—a wire-rope recommendation handbook designed to give wire-rope users a complete, basic working knowledge of the characteristics of different wire ropes and slings. Outlines how to select, order, and use the correct wire rope to do a specific job.

Write to the Wire Rope Corp. of America, Dept. C&E, P. O. Box 229, St. Joseph, Mo., or use the Request Card at page 18. Circle No. 116.

Rock bits—a brochure describing the benefits of Liddicoat Tee Cee tungsten carbide insert bits for rock drilling. Stresses "no resharpening" design. According to the literature, available sizes range from 1¼ to 2⅝ inches.

Write to the Western Rock Bit Mfg. Co., Dept. C&E, 522 W. Seventh South, Salt Lake City 1, Utah, or use the Request Card at page 18. Circle No. 44.

Chipping-hammer points—an illustrated fact sheet describing Bedco chisels for pneumatic chipping hammers, scaling hammers, and hand use. Shows standard types of safety-retainer shanks and point styles, plus dimensional data. Bulletin C-59.

Write to the Bedford Tool & Forge Co., Dept. C&E, 22 Interstate St., Bedford, Ohio, or use the Request Card at page 18. Circle No. 78.

Concrete admixtures—a folder describing the benefits of Maracon water-reducing admixtures for concrete. Well illustrated with graphs, photos, and a line drawing of automatic dispensing equipment.

Write to Marathon, division of American Can Co., Chemical Sales Dept., Dept. C&E, Menasha, Wis., or use the Request Card at page 18. Circle No. 144.

Wire tendons for prestress—a folder describing the features of Prescon coated nonbonding tendons for prestressed, post-tensioned concrete. Contains pictures and diagrams of tendon placement in forms, and tells how Prescon tendons are coated and wrapped to protect against corrosion and reduce friction in tensioning.

Write to The Prescon Corp., Dept. C&E, P. O. Box 4186, Corpus Christi, Texas, or use the Request Card at page 18. Circle No. 56.

Concrete finishers—a bulletin describing the construction and operating benefits of Rex finishers. Stresses such features as power frame widening; quick and easy crown changes; hydraulic screed positioning; and a working speed range totaling 48 different combinations. Bulletin No. 59151.

Write to the Chain Belt Co., Dept. C&E, 4701 W. Greenfield Ave., Milwaukee 1, Wis., or use the Request Card at page 18. Circle No. 72.

Vehicle safety equipment—ready-reference material on what vehicle safety equipment is needed in every state. Gives a state-by-state account of 1959 rulings on the number and types of equipment needed. Also contains a separate section dealing with the 1959 state turn-signal laws.

Write to the Automotive Lighting Division, R. E. Dietz Co., Dept. C&E, 225 Wilkinson St., Syracuse 1, N. Y., or use the Request Card at page 18. Circle No. 40.

Storage batteries—a 32-page booklet offering many helpful facts about storage batteries. "How to" hints include getting the most out of tractor batteries; corrosion prevention; and tips on battery testing, charging, installation, removal, and storage. Text illustrated with photographs.

Write to the Exide Automotive Division, The Electric Storage Battery Co., Dept. C&E, P. O. Box QV 6266, Cleveland 1, Ohio, or use the Request Card that is bound in at page 18. Circle No. 77.

Automatic mix control—a booklet describing the Helco Automix, an automatic mixture control for concrete-products batching. According to the literature, the control eliminates the need for an operator to regulate the mixing cycle. Gives details on both manual and automatic operation.

Write to the Heltzel Steel Form & Iron Co., Dept. C&E, Warren, Ohio, or use the Request Card at page 18. Circle No. 23.

Grader blade control—a new booklet describing the Preco all-transistor automatic blade control. Explains in detail the wide range of applications to which the unit can be adapted. Also describes the operating principle whereby slopes can be maintained to a 99.9 per cent degree of accuracy.

Write to Preco, Inc., Dept. C&E, 6300 E. Slauson Ave., Los Angeles 22, Calif., or use the Request Card at page 18. Circle No. 66.

Concrete cart—literature describing the Prime-Mover Model M-150 10-cubic-foot powered buggy. Includes a concrete placement comparison chart, as well as specifications, drawings, and on-the-job photographs.

Write to The Prime-Mover Co., Dept. C&E, Highway 22 E, Muscatine, Iowa, or use the Request Card at page 18. Circle No. 118.

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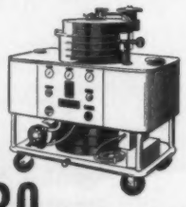
Illustrated folder sent promptly on request



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TURBO MACHINE COMPANY
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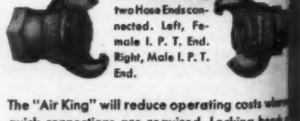

Illustrated: Above, two Hose Ends connected. Left, Female I. P. T. End. Right, Male I. P. T. End.

The "Air King" will reduce operating costs wher... quick connections are required. Locking heads ... identical for all sizes of hose or threaded ... within the coupling's size range, and are locke... pressing together and applying a quarter-... Equipped with patented Safety Locking De... Bronze or rustproofed malleable iron, in sizes ... to 1".

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Pots, Buckets, Squeegees

All sizes and styles for handling HOT or COLD Tar or Asphalt.

For these jobs: Crackfilling, Pavement Construction and Repair. Waterproofing, Pipe Coating, Sealing, Dust Laying, Carrying.

All pots and buckets are made of all welded steel (no crimping, no soldering, no riveting), Perfectly balanced, no-splash hoods, wide comfortable handles.

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for replacement, the wheel of a 10, 12 or 14 ft., or larger, wheel type ditcher designed for rock; 44, 48 or 54 inch buckets.

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ROCKLAND— THE MOST VERSATILE LAND-CLEARING ATTACHMENTS IN THE WORLD.

Easily converts from Tree-Brush-Root Cutter to Standard Rake Front

- ROCK RAKES
- GENERAL PURPOSE RAKES
- BRUSH RAKES
- TREE KNOCK-DOWN BOOMS
- TREE SAWS
- BACK-RIPPER TEETH
- STUMPMASTER BLOCKS
- STUMP PULLERS
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Rockland Products may be purchased from most Allis Chalmers, Eimco, International Harvester and Oliver Crawler Tractor Dealers. For additional information, contact direct.

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Look for FUNK'S REVERS-O-MATIC on New Equipment

One Lever DOES IT ALL

CONTROLS SPEED AND DIRECTION OF TRAVEL

- NO GEAR SHIFTING
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- MORE WORK PER HOUR
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FUNK revers-o-matic DRIVES

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HYDRAULIC CONTROLLED REVERSING CLUTCH with TORQUE CONVERTER

Look for FUNK'S REVERS-O-MATIC in any moving equipment you buy. Speed and direction of travel — forward and reverse or lift and lower — can be easily controlled by ONE LEVER or foot pedals. Torque converter prevents stall, eliminates shock and multiplies engine torque more than 200% to broaden h.p. range. Insist on FUNK equipped machines.

FUNK MFG. CO. BOX 577-B COFFEYVILLE, KANSAS

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E. B. Cape obliges the cameraman in Houston, Texas, just before taking off for Washington to help along passage of a bill for additional funds for the interstate program.

Bill Cape speaks out . . .

Bill Cape believes a contractor should be concerned with more than the immediate interests of his own company—he should be aware of national problems affecting the construction industry.

As president of the Contractors Division of ARBA and president of the Texas Highway-Heavy Branch of AGC, E. B. Cape has devoted more than his share of time and energy toward the solution of the bigger problems facing the industry.

For many years, Cape was president of Gulf Bitulithic Co., of Houston, Texas. The construction firm is a subsidiary of Warren Bros. Roads Co., Cambridge, Mass. Recently, Warren bought up 46 per cent of the stock to make Gulf Bitulithic a wholly owned subsidiary. Bill Cape, president without a company, is currently planning to start his own firm.

Of the many challenges facing construction, the biggest, according to Cape, is the lack of adequate funds to finance the federal highway program. And there is plenty that contractors can do about the problem, says C... "Few contractors realize the seri... ness of the situation, and even t... are trying to do anything about... he points out. To help this situa... Cape says, "contractors should ... action through their associations ... keep the public informed. T... should contribute of their time ... their money. With their help, ... ARBA can sponsor publicity progr... through radio, television, and ne... papers. Only then will the public ... concerned about the progress on t... Interstate System.

The importance of keeping c... struction costs to a minimum is ... other area of keen interest to C... who feels that most state highw... departments can help contractors ... duce costs by simplifying specifi... tions. This can be done, Cape feels, ... "specifying the quality of the end ... sult—not the materials, methods, ... equipment that must be used.

"State specifications are slow ... change. Construction machinery ... procedures change from year to ye... As a result, the spex sometimes ... quire a contractor to use obso... methods. Specifying the end re... will give the contractor more freed... to use new cost-cutting methods ... construction.

"Another thing states could do ... help contractors," says Cape, "is ... speed up payments for work done. ... fact, I would suggest that a highw... department be penalized if it did n... make payments within a reasonab... length of time—say, about 45 days. ... this is not done, they should be r... quired to pay the contractor the ... terest on the amount owed."

Bill Cape has strong opinions o... number of problems of the constru... tion industry, and he follows his ... advice—he speaks out and he wo... hard to help the industry over ... rough spots. This is something w... Washingtonians can testify to—a... having seen Bill in action in behal... legislation for the Interstate Sys...

Air Reduction division erects California plant

Air Reduction Pacific Co., divi... of Air Reduction Co., Inc., New Yo... City, has started construction o... new $3 million liquid oxygen, nit... gen, and argon plant in Richmo... Calif. The new plant, which will p... duce 30 tons of the liquid products ... day, will be completed end of this ye...

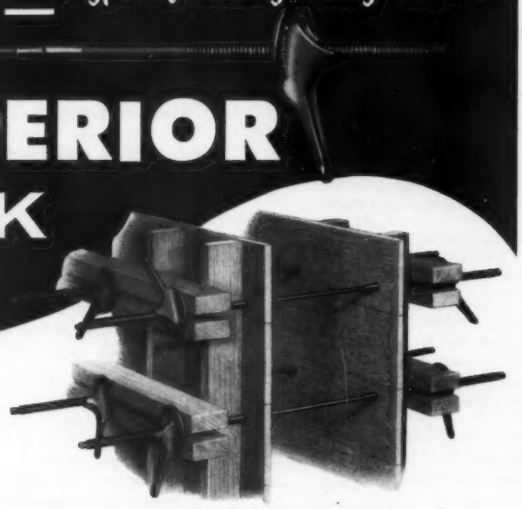
Koehring of California produces water wagon

An advanced design of a pow... water wagon, known as the C... Water-Cator, is now in production ... Koehring Co. of California, Stockt... Calif. The primary use of the uni... for application of compaction wa... in highway and street construct... The self-contained portable unit ... tures a hydraulically driven pump...

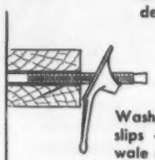
When job conditions call for this type of Heavy-Duty Tie . . .

use SUPERIOR TILT LOCK CLAMPS

with SPECIAL Safety-Type Handle Washers



The malleable Handle Washer combines handle, washer and wrench—Designed for absolute safety; cannot fall off threads when load drops off or when handle is hit accidentally.



Washer, in tilted position quickly slips over stud rod threads to wale and is seated.

Three full turns on the threads of the outside rod bring it flush and tight against the wale. When pointing upward, the handle may be hit accidentally or pressure released during pouring. This may cause the handle to turn 180°, but the safety feature of 3 complete turns makes it impossible for the clamp to fall off the thread.

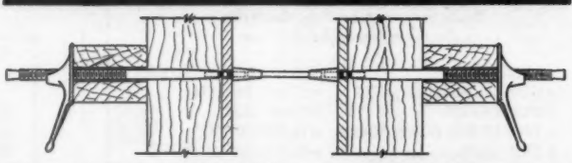
The "safety in use" of Superior's Handle Washers for Tilt Lock Clamps is shown at the left. The Tilt Lock Outside (Stud) Rods have outstanding features, too. The Outside Rod has ⅞" threads, five to the inch, rolled on a ¾" high carbon rod. This compares with the ¾" thread cut on a ¾" rod usually supplied. Cold rolled threads are tougher, and therefore more resistant to damage, and their contour greatly reduces the clogging of concrete and facilitates cleaning.

The Tilt Lock Outside Rod has a heavy cold forged rectangular end section that is ¾" wide and ½" thick, to which the Handle Washer is applied as a removal wrench. This forged section is practically indestructible, never becomes rounded after numerable reuses as does a milled end. Therefore, it is never necessary to use a Stillson.

Superior Tilt Lock Clamps are supplied with Outside Rods 16" long and 20" long, for both ¾" and ½" inside tie rods. Extensions are available where field conditions require Outside Rods longer than 20".

Superior supplies high tensile inside rods with rolled threads. Form layouts and estimates are prepared from plans without charge or obligation.

with Cone Nuts for Spreader Action



Where it is desirable to use Tilt Locks with Superior Cone Nuts for spreader action or other reasons, Tilt Lock Rods are adapted for use with Cone Nuts as illustrated above.

Tilt Lock Clamp Assemblies may be rented with a ninety day option to purchase.

SUPERIOR CONCRETE ACCESSORIES, INC.

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Houston Office 4101 San Jacinto, Houston 4, Tex.
Pacific Coast Plant and Office 2100 Williams St., San Leandro, Calif.

For more facts, use Request Card at page 18 and circle No. 429

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- **PNEUMATIC COMPACTION**
- **SMOOTH STEEL ROLLING**
- **VIBRATORY COMPACTION**

in the single low-cost, self-propelled

TRI-PACTOR!

new Seaman-Gunnison vibratory roll is available as trail-ype, gasoline or Diesel powered. Impact frequency is controlled actor operator without leaving seat.

Vibratory roll, above, on new Seaman-Gunnison TRI-PACTOR is a heavy steel tamping roll with ballasted weight and impact frequency range to compact a wide range of soils and granular materials. Exclusive new design gives deep impact that fills voids, and produces uniform densities at time-saving speeds. The tamping roll is hydraulic-powered, completely spring-insulated from body of TRI-PACTOR. The vibra-impact mechanism is completely outside steel roll . . . simplifying service and maintenance.

tractors endorse DUO-PACTORS by repeat chases on 5,000,000 cu yd Wisconsin Interstate 94

Construction Co., Milwaukee, Wis., holder of three acts, operates a fleet of three Duo-Pactors.

p Construction Company, Milwaukee, Wis., in-ed its Duo-Pactor fleet to four units. Griffith Construction Com-, Racine, Wis., bought a second Duo-Pactor. Jos. D. Boness, also standardized on Duo-Pactors.

At the start of construction last spring, five Duo-Pactors were among compaction equipment used by four contractors holding contracts for five sections of Interstate 94, Illinois state line to Milwaukee city limits. As job progressed, *seven more Duo-Pactors* were put on these jobs for 4,976,500 cu yd of fill PLUS gravel base compaction, and for bituminous-surfaced local access roads. The reason: *lower compaction costs, plus speed and maneuverability to keep up with the scraper fleets.*

The DUO-PACTOR developed by Seaman-Gunnison combined for the first time rubber and steel rolls in a low-cost self-propelled unit. Its development was the result of more than a quarter-century of pioneering soil stabilization equipment. Contractors in all sections of the nation have proven its ability to produce maximum densities at lowest compaction co sts.

Now, compaction costs can be slashed still further! To the Duo-Pactor's steel roll has been added *vibratory* action, forming the new Seaman-Gunnison TRI-PACTOR. By combining pneumatic compaction with either static or vibratory steel roll . . .
the TRI-PACTOR assures densities of 100%-plus at high production rates, at minimum operating cost . . . often saving up to 50 per cent or more in equipment cost and the power to operate. At the touch on a lever, you *instantly* adapt the TRI-PACTOR to every change in job conditions:

1. High density pneumatic compaction with eight closely-spaced rubber rolls. Rolls are mounted in pairs on torsion springs for controlled oscillation, producing *uniform* densities despite surface irregularities. Compactive pressures up to 100 psi can be applied.

2. Steel roll (without vibration), presses in materials between rubber roll tracks, thus unifying densities across the entire rolling width and attaining specified densities in fewer passes. Also used for smooth steel rolling on crushed rock and gravel bases; seal-coating; bituminous, cement, and other soil stabilizations.

3. Dynamic vibratory compaction—a heavy tamping steel roll—compacts a wide range of soils as well as granular materials *at production speeds.*

The TRI-PACTOR has been job-tried and service proved. On one recent airport runway extension job for jet plane requirements, it proved the *only* equipment able to produce base course densities over 100 per cent modified AASHO at production speeds. *If you are faced with difficult compaction problems—if you want to increase earth-moving profit margins* through lower compaction costs, write or phone today!

SEAMAN GUNNISON

Write for informative bulletins . . . giving complete TRI-PACTOR SPECIFICATIONS; also Duo-Pactors with mid-ship or trailing steel roll, with regular, dump, or water-ballast bodies. Choice of prime movers.

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2763 S. 27th Street, Milwaukee 15, Wis.

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☐ TRI-PACTOR ☐ DUO-PACTOR ☐ Trailing Vibratory Roll ☐ Utility Scraper
☐ Duo-Flo Bituminous Distributor ☐ Hydro-Jet Street Flusher

Name_____
Title_____
Company_____
Street_____
City_____ State_____

For more facts, use coupon or Request Card at page 18 and circle No. 430

Rubber-tired dozer plugs $10 per hour profit leak

The problem was sand. 3,400,000 yds of blow sand, playing its usual havoc with crawler tracks. Particularly with push-dozer tracks. Contractors, rebuilding a federal highway in Indiana, found their 320 hp pusher, working this rough material, needed a track repair job *every 700 hours*. Cost, $7,000! Or $10 an hour—over and above normal operating costs.

When need arose for a second pusher, contractors got ready to shell out another $10 an hour.

Solution—rubber

"Before we do," said the project supt and a 29-year veteran in the business, "let's look at the latest rubber-tired dozers. Sand shouldn't be nearly as hard on rubber as it is on steel tracks."

"Agreed," management answered. "But any rubber-shod rig we buy *must* do as good a pushing job as our 320 hp crawler!"

One machine did. A 375 hp Michigan Model 380 Dozer brought in by the Clark distributor. Contractors bought it!

15 pay yds: 20 to 80 seconds

From that day on, the Michigan and the big crawler together handled push-loading of a fleet of seven 25-yd scrapers. Performance of the two pushers was very much the same. Per-scraper load time, either loading unit, varied from 20 to 80 seconds (depending upon the soil). Scraper loads, with either crawler or Michigan, measured 15-plus pay yds. Output, per pusher, with scrapers on one mile haul, ran about 2,150 pay yds per 8-hour day.

Speed provides bonus

Why was the contractor so pleased? Well, he eliminated $10 an hour in track maintenance, at no decrease in push-loading efficiency. He also got a bonus in speed. One day, for instance, the Michigan alone spread all fill . . . a job which normally took two 191 hp crawler dozers. Another time, when the pushers had to work two different borrow areas in one da the 25 mph Michigan reached the second site so quickly it g in half an hour's work while the crawler was still creepi along the road shoulder. And the firm expects to use t Michigan on still other applications on other jobs. Says t supt, "This unit sure is *not* just a special-purpose sand m chine. It can do as good a job as a crawler—or a better one on about 70% of what some people call "big crawler" appli tions. Mud, not as good maybe. But sand, clay, dir excellent!"

High dozing speeds let the one Michig do work of two crawlers, spreading

See for yourself. Write our sales department, in Bent Harbor for data. Or call your nearest Michigan Distribut for a demonstration.

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